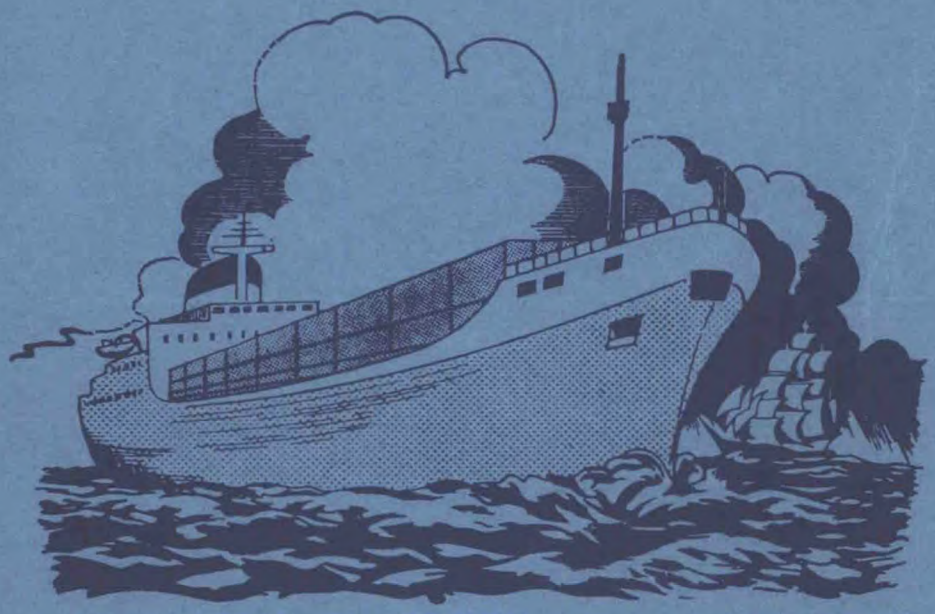
Met. O. 972

The Marine Observer

A quarterly journal of Maritime Meteorology



Volume 56 No. 293
July 1986

Met. O. 972

THE MARINE OBSERVER

A QUARTERLY JOURNAL OF MARITIME METEOROLOGY PREPARED BY THE MARINE DIVISION OF THE METEOROLOGICAL OFFICE

VOL. 56 **No. 293** **JULY 1986**

CONTENTS

	Page
Excellent Awards, 1985	**106**
The Marine Observers' Log — July, August, September	**112**
The Fortieth Anniversary of the United Nations. By D. A. Davies	**133**
Treatment of Bird Casualties at Sea. By Captain A. S. Young	**137**
Halley's Comet: The photographs by the Giotto spacecraft's camera	**139**
Aurora Notes July to September 1985. By R. J. Livesey	**140**
Letters to the Editor	**144**
Personalities	**145**
Book Reviews	
The Butterflies of Northern Europe	**146**
Raffles, The Story of Singapore	**147**
The Violent Earth	**148**
Notices to Marine Observers	**149**
Fleet Lists	**150**

Letters to the Editor, and books for review, should be sent to the Editor 'The Marine Observer', Meteorological Office, Eastern Road, Bracknell, Berkshire RG12 2UR

LONDON: HER MAJESTY'S STATIONERY OFFICE

EXCELLENT AWARDS 1985

The method of selecting annual Excellent Awards has this year been modified in a minor way to take account of the additional 3-hourly observations made aboard the 8 ships with special automatic transmission equipment, known as MOSS (Meteorological Observing System for Ships). The only palpable result of this change is a small drop in the total number of meteorological logbooks from ships of the U.K. Voluntary Observing Fleet being assessed as Excellent. This reduction was, however, more than offset by a noticeable increase in the overall standard of observation, narrative and transmission to be found in logs from all sections of the fleet.

Out of a total of 1166 meteorological logs received from ships during 1985, 207 were assessed as Excellent, the highest marking obtainable. These books resulted in award nominations for 132 Masters and Principal Observing Officers and 140 Radio Officers, of which 20, 17 and 10 respectively appeared twice or more often. It was therefore a difficult task to select only 300 names from the 404 nominees for receipt of Excellent Awards. Account was taken of all the factors affecting differing ships' abilities to maintain a high standard of observing, evidenced by the number of ships from companies which have not recently been favoured, such as Silver Line, Jebsens, Caledonian MacBrayne, Lyle's and Turnbull Scott. Masters and Officers from Palm Line ships featured on no less than 4 occasions, much to our gratification and benefit.

There was also close competition at the top of the list and it is our pleasure to be able to list ten ships which occupy the upper six places in our awards.

1. m.v. *Afric Star* (Blue Star Ship Management Ltd), Captain J. C. Harris.
   m.v. *ACT 7* (Blue Star Ship Management Ltd), Captains D. M. McPhail, W. A. Davidson and W. J. G. Jones.
2. m.v. *Kildare* (P. & O. Bulk Shipping Ltd), Captain R. O. McD. Wilson.
3. m.v. *City of Durban* (Denholm (I.O.M.) Ltd), Captain R. J. Smith.
   m.v. *Lincolnshire* (Bibby Line Ltd), Captain R. A. F. Edwards.
   m.v. *ACT 8* (Denholm (I.O.M.) Ltd) Captain P. J. Bishop.
4. m.v. *Lincolnbrook* (F. T. Everard & Co.), Captain L. T. Marchant.
   m.v. *Mosel Express* (Overseas Containers Ltd), Captain W. A. Murison.
5. m.v. *Osaka Bay* (Overseas Containers Ltd), Captain J. D. Thomson.
6. m.v. *Stolt Templar* (Wallem Specialized Management Services Ltd), Captain K. Richmond.

Photographs of the first 3 ships appear opposite page 112. Our particular congratulations are due to Captain McPhail and all concerned of the m.v. *ACT 7* for their unsurpassed achievement in maintaining their position in the list of top ships for 5 years consecutively.

The initial award is Philip's *New World Atlas,* in its 6th edition, which includes 48 pages of satellite photographs showing the world from space; second is *Chambers Twentieth Century Dictionary* with thumb-indexing, and this year's chosen special book is *The Violent Earth* by Frank Lane, a collection of accounts of Nature's destructiveness augmented by many stunning photographs.

Recipients of awards will be notified by post and requested to provide a return address for their books. Masters and Officers seeing their names listed here, or in a company publication are invited to contact us with a forwarding address without waiting for our letter of notification, if they so wish.

J. F. T. H.

EXCELLENT AWARDS (Year ended 31 December 1985)

Captain	Company
G. C. Alston	Palm Line Ltd
G. C. Barrett	Overseas Containers Ltd
R. K. Bilton	Blue Star Ship Management Ltd
P. J. Bishop	Denholm (I.O.M.) Ltd
R. J. Bland	Overseas Containers Ltd
M. B. Bradley	Ropner Management Ltd
R. Brinkworth	Overseas Containers Ltd
P. S. Bytheway	Bibby Line Ltd
W. C. Carruthers	Overseas Containers Ltd
R. R. Cawdery	Cayzer, Irvine Shipping Ltd
A. J. Cheshire	Blue Star Ship Management Ltd
I. W. Collister	Overseas Containers Ltd
J. K. Cooper	Cunard Shipping Services Ltd
R. J. Court	Bibby Line Ltd
P. H. Daniel	Blue Star Ship Management Ltd
W. A. Davidson	Blue Star Ship Management Ltd
R. G. Davis	F. T. Everard & Sons Ltd
T. K. Dawson	F. T. Everard & Sons Ltd
M. J. Dickens	Silver Line Ltd
R. Dinnie	Overseas Containers Ltd
R. W. H. Dole	Jebsens Ship Management Ltd
D. A. Dornom	Overseas Containers Ltd
G. D. Easton	Blue Star Ship Management Ltd
M. Edward	Townsend Car Ferries Ltd
R. A. F. Edwards	Bibby Line Ltd
H. Evans	Cunard Shipping Services Ltd
A. T. Ferrier	Caledonian MacBrayne Ltd
A. J. Flenley	Cayzer, Irvine Shipping Ltd
A. D. Gillie	London & Overseas Freighters P.L.C.
M. J. R. Godbehear	Overseas Containers Ltd
J. M. Harneis	Blue Star Ship Management Ltd
J. C. Harris	Blue Star Ship Management Ltd
D. V. Harradine	Overseas Containers Ltd
D. V. Heasleden	P. & O. Lines Ltd
L. M. Hocking	Lyle Ship Management Ltd

Captain	Company
G. A. J. Holeyman	Palm Line Ltd
J. R. Hughes	Bibby Line Ltd
P. V. Hunter	Furness Withy (Shipping) Ltd
N. E. F. Jacotine	Canadian Pacific Steamships Ltd
R. A. W. Jarrett	B.P. Shipping Ltd
W. F. Jeffrey	Acomarit (U.K.) Ltd
J. E. Jennings	Ropner Management Ltd
N. D. T. Johnson	Blue Star Ship Management Ltd
P. N. Johnson	B.P. Shipping Ltd
T. F. Jones	Ropner Management Ltd
W. J. G. Jones	Blue Star Ship Management Ltd
A. W. Kinghorn	Blue Star Ship Management Ltd
S. J. Lawrence	British Antarctic Survey
S. J. Lintott	P. & O. Lines Ltd
R. Llewellyn	Furness Withy (Shipping) Ltd
C. I. Mackillop	Blue Star Ship Management Ltd
W. F. McCarthy	Overseas Containers Ltd
D. M. McPhail	Blue Star Ship Management Ltd
C. T. Marchant	F. T. Evarard & Sons Ltd
G. Morris	Palm Line Ltd
W. A. Murison	Overseas Containers Ltd
T. S. Nurcombe	London & Overseas Freighters P.L.C.
I. A. Oliphant	B.P. Shipping Ltd
A. J. Palmer	Overseas Containers Ltd
E. M. S. Phelps	British Antarctic Survey
W. N. Pritchard	Cayzer, Irvine Shipping Ltd
A. A. Railton	Overseas Containers Ltd
P. R. R. Ramsay	Cunard Shipping Services Ltd
D. L. Rattray	Dept. of Agriculture & Fisheries for Scotland
P. F. Redfern	Shell Tankers (U.K.) Ltd
E. T. Rees	Bank Line Ltd
M. M. Reeves	Bibby Lines Ltd
R. B. Reid	P. & O. Lines Ltd
K. Richmond	Wallem Specialised Mang. Services Ltd
G. E. Round	Blue Star Ship Management Ltd

Excellent Awards *(contd)*

Captain	Company
R. P. Royan	Overseas Containers Ltd
C. R. Short	Overseas Containers Ltd
P. Simpson	Bank Line Ltd
R. J. Smith	Denholm (I.O.M.) Ltd
E. D. Somes	Ocean Fleets Ltd
M. C. Stephenson	B. P. Shipping Ltd
D. Stewart	Bank Line Ltd
J. D. Thomson	Overseas Containers Ltd
J. F. Thomson	B.P. Shipping Ltd
K. H. Thorne	Turnbull Scott Management Ltd
J. S. Thorpe	Overseas Containers Ltd
C. B. Tingle	Ropner Management Ltd
D. Tobin	B.P. Shipping Ltd
R. E. Todd	Cayzer, Irvine Shipping Ltd
R. Vinton	Palm Line Ltd
C. B. Walgate	Overseas Containers Ltd
J. V. Wallace	P. & O. Lines Ltd
C. J. Watson	B.P. Shipping Ltd
T. L. Watson	Overseas Containers Ltd
A. H. White	Blue Star Ship Management Ltd
R. T. Wigg	Shell Tankers (U.K.) Ltd
R. Whistler	Furness Withy (Shipping) Ltd
R. O. Mc D. Wilson	P. & O. Lines Ltd
W. A. Wilson	Blue Star Ship Management Ltd
M. J. Winter	Furness Withy Shipping Ltd
J. P. Wishart	Ocean Fleets Ltd
I. Woodier	Bolton Maritime Management Ltd

Principal Observing Officer	Company
C. M. Anderson	Blue Star Ship Management Ltd
M. A. Armitage	Overseas Containers Ltd
M. Barraclough	Overseas Containers Ltd
D. C. Bartlett	Silver Line Ltd
J. J. M. Beggs	Caledonian MacBrayne Ltd
M. S. Bell	Cunard Shipping Services Ltd
C. J. Blane	F. T. Everard & Sons Ltd
R. K. Q. Butler	Overseas Containers Ltd
L. St. J. Campbell	Blue Star Ship Management Ltd
S. Capes	Blue Star Ship Management Ltd
P. A. Carmichael	Ropner Management Ltd
M. J. Chapman	Overseas Containers Ltd
M. K. Clark	Cunard Shipping Services Ltd
P. Johnson	Overseas Containers Ltd
G. M. Jones	Shell Tankers (U.K.) Ltd
Khalid Ahmed Khan	Acomarit (U.K.) Ltd
G. Laversuch	Ocean Fleets Ltd
A. M. Leech	Overseas Containers Ltd
A. L. LeGoubin	Cunard Shipping Services Ltd
A. W. Lewington	Bolton Maritime Management Ltd
G. L. Lewis	F. T. Everard & Sons Ltd
R. G. Lines	B. P. Shipping Ltd
C. N. Lovett	Shell Tankers (U.K.) Ltd
P. M. Lovett	Turnbull Scott Mang. Ltd
I. R. Macleod	Palm Line Ltd
K. J. McClymont	London & Overseas Freighters P.L.C.

J. L. Clarke	Blue Star Ship Management Ltd
H. N. V. Cole	Bank Line Ltd
H. J. Conlon	B. P. Shipping Ltd
N. Conquest	Palm Line Ltd
D. Cramer	Bibby Line Ltd
P. J. Curtis	P. & O. Lines Ltd
J. Davies	Bank Line Ltd
T. A. Davies	Overseas Containers Ltd
M. J. Daw	Furness Withy (Shipping) Ltd
M. R. Dickinson	B. P. Shipping Ltd
B. Elston	Blue Star Ship Management Ltd
J. G. Ewart	Blue Star Ship Management Ltd
A. N. Fairfield	Furness Withy (Shipping) Ltd
A. M. Farooqui	Acomarit (U.K.) Ltd
M. P. Fawke	B. P. Shipping Ltd
J. Fidler	B. P. Shipping Ltd
D. B. Flood	Cayzer, Irvine Shipping Ltd
N. E. Gardiner	Overseas Containers Ltd
T. H. Goldsmith	P. & O. Lines Ltd
I. D. Gordon	Bibby Line Ltd
C. Green	Shell Tankers (U.K.) Ltd
G. R. Green	Furness Withy (Shipping) Ltd
R. B. Gurney	Overseas Containers Ltd
I. N. Haffenden	Palm Line Ltd
P. J. Hancock	Palm Line Ltd
N. G. Hawkes	Silver Line Ltd
J. B. Hawkins	British Antarctic Survey
R. I. Hay	Cayzer, Irvine Shipping Ltd
A. Haynes	Bank Line Ltd
S. N. Horne	Overseas Containers Ltd
D. J. Horsfield	Blue Star Ship Management Ltd
S. J. Hutty	Canadian Pacific Steamships Ltd
A. E. Jackson	Cayzer, Irvine Shipping Ltd
J. M. Jenkins	British Antarctic Survey
P. J. Jenner	P. & O. Lines Ltd
L. H. M. Johnson	Overseas Containers Ltd
I. McKendrick	Dept. of Agriculture & Fisheries for Scotland
S. J. Miller (Miss)	P. & O. Lines Ltd
C. W. Milne	Jebsens Ship Management Ltd
W. P. Mitchell	Blue Star Ship Management Ltd
R. A. A. Morrison	Blue Star Ship Management Ltd
J. Murray	Denholm (I.O.M.) Ltd
N. J. Nash	Cunard Shipping Services Ltd
P. B. W. Newton	Lyle Ship Management Ltd
M. A. Pearce	London & Overseas Freighters P.L.C.
L. C. Pink	F. T. Everard & Sons Ltd
P. G. Powell	F. T. Everard & Sons Ltd
B. C. Pritchard	P. & O. Lines Ltd
P. S. Ratcliffe	Bibby Lines Ltd
A. Richmond	Blue Star Ship Management Ltd
P. A. Rickard	Furness Withy (Shipping) Ltd
T. Risebrow	Canadian Pacific Steamships Ltd
D. G. Robbie	Blue Star Ship Management Ltd
A. H. Roberts	Wallem Specialised Mang. Services Ltd
B. L. Rolf	Overseas Containers Ltd
R. J. Ross	Townsend Car Ferries Ltd
P. C. Sellers	Blue Star Ship Management Ltd
D. C. Slack	Overseas Containers Ltd
C. R. D. Soanes	B. P. Shipping Ltd
B. J. Stewart	Cayzer, Irvine Shipping Ltd
M. Swann	Blue Star Ship Management Ltd
R. E. Taylor	B. P. Shipping Ltd
L. A. Turner	Overseas Containers Ltd
D. J. Vickery	Ropner Management Ltd
S. L. J. Walker	Bibby Line Ltd
P. D. Walker	B. P. Shipping Ltd
C. D. Whittemore	B. P. Shipping Ltd
K. P. Widdowson	Ocean Fleets Ltd
W. M. Winter (Miss)	Overseas Containers Ltd
A. I. W. Wortley	Overseas Containers Ltd
P. Wylie	Ropner Management Ltd

Excellent Awards *(contd)*

Radio Officer	Company
J. Allen	Marconi International Marine Co. Ltd
I. F. Alexander	London & Overseas Freighters P.L.C.
M. P. Atherton	Overseas Containers Ltd
J. Barkess*	Dept of Agriculture & Fisheries for Scotland
G. N. Basnett	P. & O. Lines Ltd
C. A. Bates*	F. T. Everard & Sons Ltd
A. M. Begg	S. T. & C. International Marine Ltd
P. Body	Marconi International Marine Co. Ltd
S. J. Braithwaite	Overseas Containers Ltd
D. Brooks	Marconi International Marine Co. Ltd
A. Brown	B. P. Shipping Ltd
B. C. Bull	Townsend Car Ferries Ltd
M. D. Bull	P. & O. Lines Ltd
D. J. Busveids	Canadian Pacific Steamships Ltd
B. Cameron	B. P. Shipping Ltd
A. Campbell	Cayzer, Irvine Shipping Ltd
C. S. Carver	Radio & Electronic Services Ltd
S. R. Cloutte	Overseas Containers Ltd
D. Colclough	Cayzer, Irvine Shipping Ltd
R. F. Collins	S. T. & C. International Marine Ltd
E. Connell	Canadian Pacific Steamships Ltd
C. Constantinou	Overseas Containers Ltd
J. R. Cowan	S. T. & C. International Marine Ltd
C. G. M. Dale*	Dept. of Agriculture & Fisheries for Scotland
F. Daniels	Stephenson Clarke Shipping Ltd
P. B. Davies	S. T. & C. International Marine Ltd
J. Davis	Stephenson Clarke Shipping Ltd
D. R. Egerton	Radio & Electronic Services Ltd
M. J. Ellis	P. & O. Lines Ltd
P. W. Ferguson	P. & O. Lines Ltd
D. S. Flemington	Overseas Containers Ltd
D. Forster	Marconi International Marine Co. Ltd
R. Fuller	S. T. & C. International Marine Ltd
M. J. Gamble	Shell Tankers (U.K.) Ltd
T. Gilmour	S. T. & C. International Marine Ltd
R. B. Glasson	S. T. & C. International Marine Ltd

Radio Officer	Company
J. A. Hynes	Marconi International Marine Co. Ltd
D. Jakobaufderstroht	London & Overseas Freighters P.L.C.
K. R. Jones	B. P. Shipping Ltd
G. Kemp	Overseas Containers Ltd
W. Latus	Cayzer, Irvine Shipping Ltd
S. Lockhart*	Dept. of Agriculture & Fisheries for Scotland
R. A. M. Lynn	Marconi International Marine Co. Ltd
E. Mackenzie	Overseas Containers Ltd
G. F. Maclean*	Caledonian MacBrayne Ltd
H. J. McGrory	Canadian Pacific Steamships Ltd
M. J. A. McKenny	P. & O. Lines Ltd
P. A. Matthews	Overseas Containers Ltd
A. Monteath*	F. T. Everard & Sons Ltd
H. G. Moran	Bank Line Ltd
P. C. Morris	Townsend Car Ferries Ltd
B. A. Mullan	Overseas Containers Ltd
M. C. Murphy	Marconi International Marine Co. Ltd
B. Neary	Marconi International Marine Co. Ltd
W. Oliver*	Caledonian MacBrayne Ltd
G. D. Owen*	Dept. of Agriculture & Fisheries for Scotland
J. G. Palethorpe	Denholm (I.O.M.) Ltd
M. R. Palmer	Ocean Fleets Ltd
P. I. Pegg	Overseas Containers Ltd
J. A. Phipps	Harrisons (Clyde) Ltd
G. R. Pinner	British Antarctic Survey
P. N. Pouchet	S. T. & C. International Marine Ltd
R. B. Redhead	Overseas Containers Ltd
G. N. Shaw	S. T. & C. International Marine Ltd
S. Shayes	S. T. & C. International Marine Ltd
R. M. Slacke	Marconi International Marine Co. Ltd
G. L. Smeaton	B. P. Shipping Ltd
N. R. Smirk	S. T. & C. International Marine Ltd
R. Forsbrook-Smith	London & Overseas Freighters P.L.C.
M. D. Smyth	B. P. Shipping Ltd
E. B. Stephenson	Overseas Containers Ltd
C. Stuart	London & Overseas Freighters P.L.C.

F. Gordon*	J. Marr & Sons Ltd
G. S. Graham	Furness Withy (Shipping) Ltd
W. Grant	Overseas Containers Ltd
P. E. Greer	Radio & Electronic Services Ltd
A. P. Gurney	B. P. Shipping Ltd
B. A. Hall*	Dept. of Agriculture & Fisheries for Scotland
M. R. T. Hannan	Overseas Containers Ltd
N. W. Harrison	P. & O. Lines Ltd
D. Hobson	Furness Withy (Shipping) Ltd
C. W. Hodgson	Overseas Containers Ltd
S. Hollingworth	S. T. & C. International Marine Ltd
J. G. Hull	S. T. & C. International Marine Ltd
A. D. Hutchinson	Overseas Containers Ltd
J. Styles	Furness Withy (Shipping) Ltd
T. M. Summers	Shell Tankers (U.K.) Ltd
A. R. Taylor	Radio & Electronics Services Ltd
H. Thompson	Wallem Specialised Mang. Services Ltd
J. C. Thompson	Overseas Containers Ltd
T. D. Tims	Radio & Electronic Services Ltd
A. Titley	Overseas Containers Ltd
J. A. Tomlinson	Cayzer, Irvine Shipping Ltd
R. Wade	British Antarctic Survey
M. C. Wakelin	B. P. Shipping Ltd
D. L. Warner*	Ropner Management Ltd
R. A. Wilson	Curnow Shipping Ltd

'MARID' SHIPS†

Captain	Principal Observing Officer	Radio Officer	Company
J. Campbell	M. Scott	J. Mathers	Caledonian MacBrayne Ltd
R. S. Francis	K. Monday	H. Chesters	Stephenson Clarke Shipping Ltd
K. Hebdon	R. C. Moss	I. Wilson	Esso Petroleum Co. Ltd

* Deck officer

† Vessels recruited for the purpose of observing and transmitting sea temperatures with non-instrumental observations in the North Sea.

July, August, September

The Marine Observers' Log is a quarterly selection of observations of interest and value. The observations are derived from the logbooks of marine observers and from individual manuscripts. Responsibility for each observation rests with the contributor.

Observing officers are reminded that preserved samples of discoloured water, luminescent water, etc. considerably enhance the value of such an observation. Port Meteorological Officers in the U.K. will supply instructions on how to preserve and pack such samples on request.

TROPICAL STORM 'RUBY'

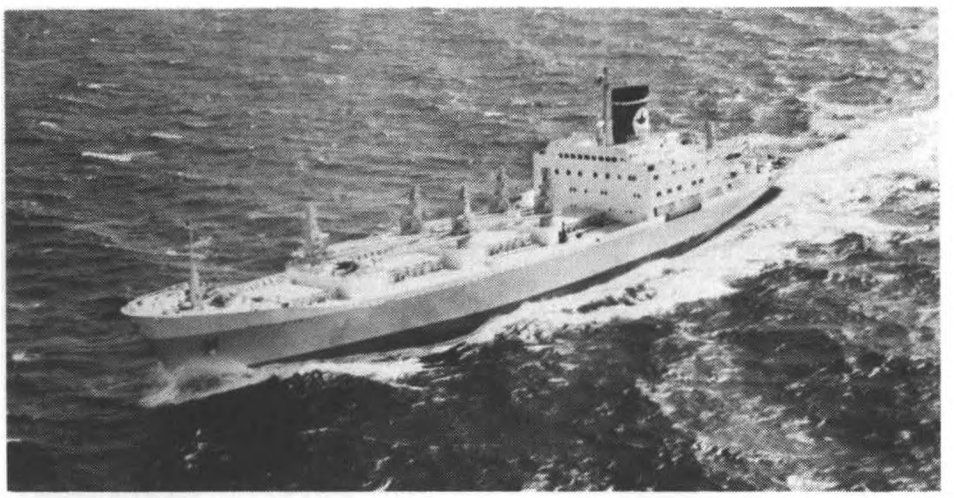
Western North Pacific

m.v. *Bibi*. Captain J. S. Marshall. At Yokohama anchorage. Observers: the Master, Mr T. Haxell, Chief Officer, Mr C. G. Everett, 2nd Officer, Mr S. F. Broderick, 3rd Officer, Mr P. D. Bidmead, Radio Officer and ship's company.

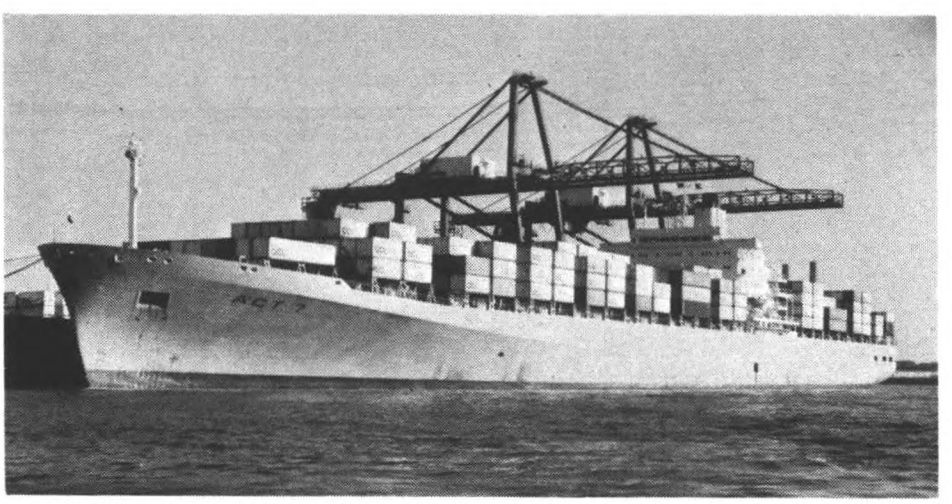
30–31 August 1985. The vessel arrived at the anchorage in Tokyo Bay at 0030 GMT, and the following information was compiled from observations made at regular intervals by the Master and officers, using the ship's meteorological equipment. At anchor, the port anchor was used, with six shackles in the water. The barogram illustrates the pressure changes as experienced by the ship.

Date and time	(GMT)	Wind Dir'n	Force	Temperature (°c) Dry bulb	Dew point	Pressure and Remarks
30th	0300	ENE	3	28·0	24·0	1018·5 mb. Vis. good. Overcast and clear.
	0700	E'S	4	26·5	23·0	1011·2 mb. Weather as above.
	0900	—	—	—	—	Vessel making preparations for approaching storm. Port anchor paid out to 8 shackles on deck. Engine made ready. Heavy rain commences at 0915.
	1100	ENE	7	25·8	25·0	1010·2 mb. Vis. moderate. Overcast with heavy, continuous rain.
	1200	ENE	8	23·8	22·8	1008·0 mb. Vis. moderate. Heavy, continuous rain further reducing vis.
	1300	N'E	8	24·4	23·4	1005·0 mb. Poor vis. Overcast, heavy rain reducing vis. to 100 m.
	1350	—	—	—	—	Stand by engines owing to the rapidly increasing intensity of the storm.

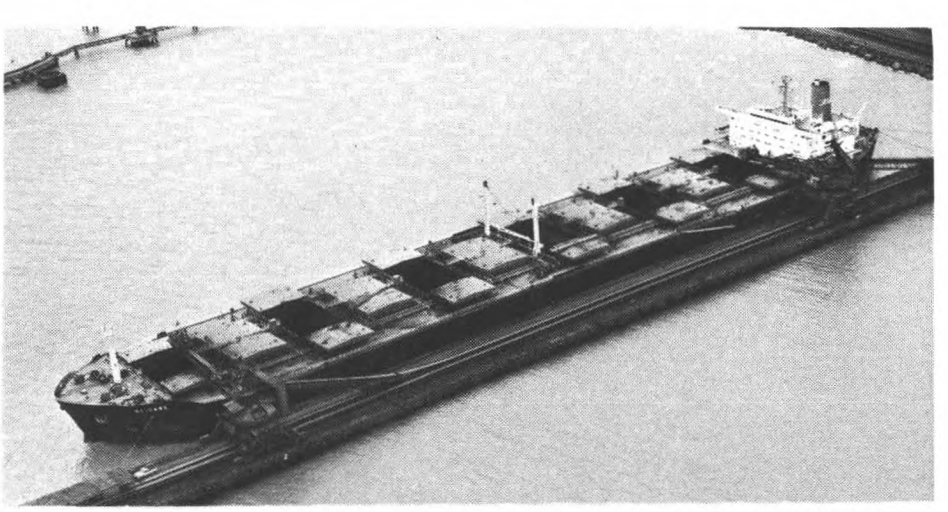
Opposite page 112



Afric Star (Blue Star Ship Management Ltd) Captain J. C. Harris



ACT 7 (Blue Star Ship Management Ltd) Captains D. M. McPhail, W. A. Davidson and W. J. G. Jones



Kildare (P & O Bulk Shipping Ltd) Captain R. O. McD. Wilson

THREE OF THE SHIPS WHICH GAINED THE HIGHEST MARKS FOR THEIR METEOROLOGICAL LOGBOOKS DURING THE YEAR 1985 (*See* page 106)

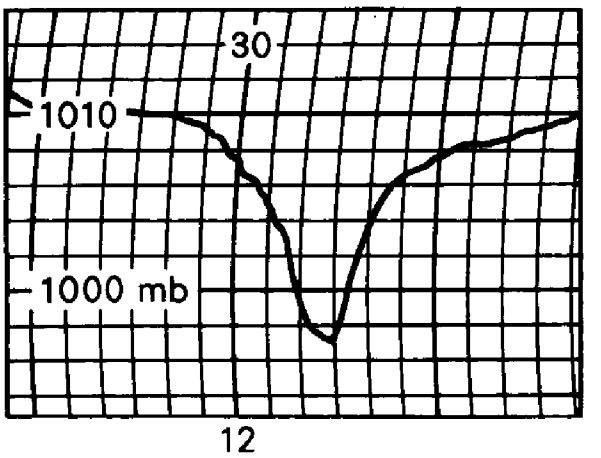
Opposite page 113

Photo by G. J. Simpson

North Atlantic Puffin on board m.v. *Lincolnshire*. (*See* page 124)

Photo By B. A. Mullan

Giant Water Bug found on board m.v. *Cardigan Bay*. (*See* Page 127)



1400	NE'E	9	24·2	23·8	999·0 mb. Poor vis. Overcast with very heavy rain reducing vis. to zero. Wind gusting to 55 knots.
1410	—	—	—	—	Vessel dragging port anchor. Engines at Dead-slow Ahead to maintain position.
1420	—	—	—	—	Storm intensity decreasing as centre approaches. Rain intensity decreasing, vis. improving.
1430	NE	4	24·5	23·5	998·4 mb. Moderate vis. Overcast with moderate rain, becoming light, Vis. improving.
1500	NW'W	4	24·5	23·5	998·0 mb. Good vis. Overcast and clear. Storm centre overhead.
1530	—	—	—	—	Wind begins to increase. Moderate rain commences. Moderate vis.
1600	W	8	24·8	24·0	1005·0 mb. Moderate vis. Overcast with very heavy, continuous rain reducing vis. to zero at times. Wind gusting to 50 knots. Engines Dead-slow Ahead to maintain position.
1700	W	6	25·0	24·0	1008·2 mb. Vis. moderate/good. Rain easing to become light.
1800	WSW	5	25·6	24·0	1009·2 mb. Good vis. Rain ceased. Storm down-graded from STS to TS.
1900	SW	4	26·5	23·0	1010·0 mb. Good vis. Overcast and clear.
2300	SSW	2	27·8	25·0	1011·5 mb. Good vis. Cloudy, fine and clear.

Reports received at 0600 on 31 August from Tokyo Radio Station stated that Tropical Storm Ruby was weakening and filling, becoming a low pressure area and continuing to weaken.

Postion of ship: 32° 25′N, 139° 44′E.

Note. The *Bibi* is a Selected Ship of the Canadian Voluntary Observing Fleet.

HEAVY WEATHER

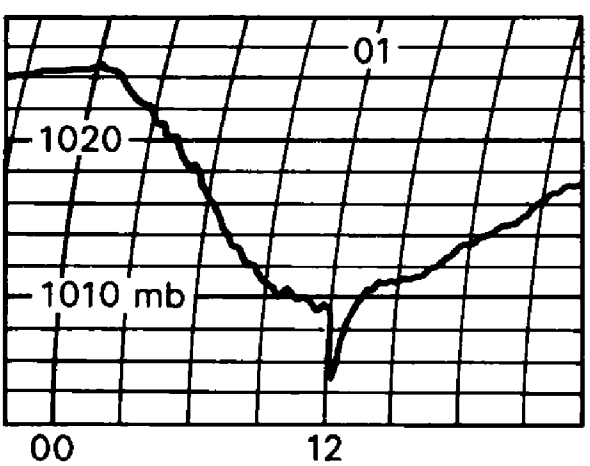
Western North Atlantic

m.v. *Dart Britain*. Captain M. J. Winter. Le Havre to New York. Observers: the Master, Mr M. J. Daw, 3rd Officer and ship's company.

28 August – 1 September 1985. Whilst on a great circle track to New York via Cape Race, a low-pressure system was noted on the Halifax 'fax' pictures, coming out of New York State during 28/29 August. The prognoses indicated that it would deepen and move offshore towards the general vicinity of Sable

Island. As the ship was 'on-board' routed, the decision was taken to proceed to the north-west of Sable Isand, rather than south of it, as it was felt this would offer the chance of generally following winds, and also some lee.

Forecasts up until 31 August had indicated the low moving fairly quickly, and not developing into a gale until well offshore. However, on the 31st, a forecast indicated that the low was not moving as quickly as anticipated and that it would develop into a gale centre off Nova Scotian waters during the night of 31 August/1 September. The wind gradually increased from the north-east, and at 1100 GMT on the 1st, the deck log recorded NE'ly, force 7–8, pressure 1011·4 mb. However, as shown on the barogram, from 1130 the trace fell practically vertically while the wind increased to force 9–10. At the synoptic hour, the



pressure was 1006·5mb ad the wind was NE'ly, force 9; but as dramatically as it had fallen, the pressure rose again and by 1220 was back to 1009 mb, the wind had decreased to about force 6, but with little change in direction. It was also noted at this time, that the rain which had been experienced for the previous twelve hours, virtually ceased although the visibility remained moderate. By 1330, the wind had backed slightly and continued to moderate slowly.

Having experienced such a squall as this, one wonders if the met. station ashore believed the observations, particularly as this seemed to be very localized and also as it occurred right on the synoptic hour.

Position of ship at 1200 GMT on 1 September: 45° 06′N, 59° 42′W.

Note. Mr D. Ireland, of the Marine Climatology branch, Meteorological Office, comments:

'This depression had force 7 winds with the south-west sector as it left the coast near New York at about 0001 GMT on 31 August. By 1200 on 1 September, it was about 30 n. mile south-east of Sable Island and had deepened by only 2 mb to 1004·0 mb. At this time it had gale force 8 winds within 250 n. mile of the centre, but its shape had changed to be more typical of the "nor-easters" so notorious in January and February, and there was a very narrow band of strong winds in its north-west sector. The *Dart Britain* appears to have found these winds with unerring accuracy.

'This very localized behaviour is difficult to predict, and the forecaster will indeed be cautious about accepting an isolated report. However, near the U.S.A., radio messages can be prefixed with the word STORM just before your call sign. This should both alert and convince the National Weather Service of the veracity of the report.'

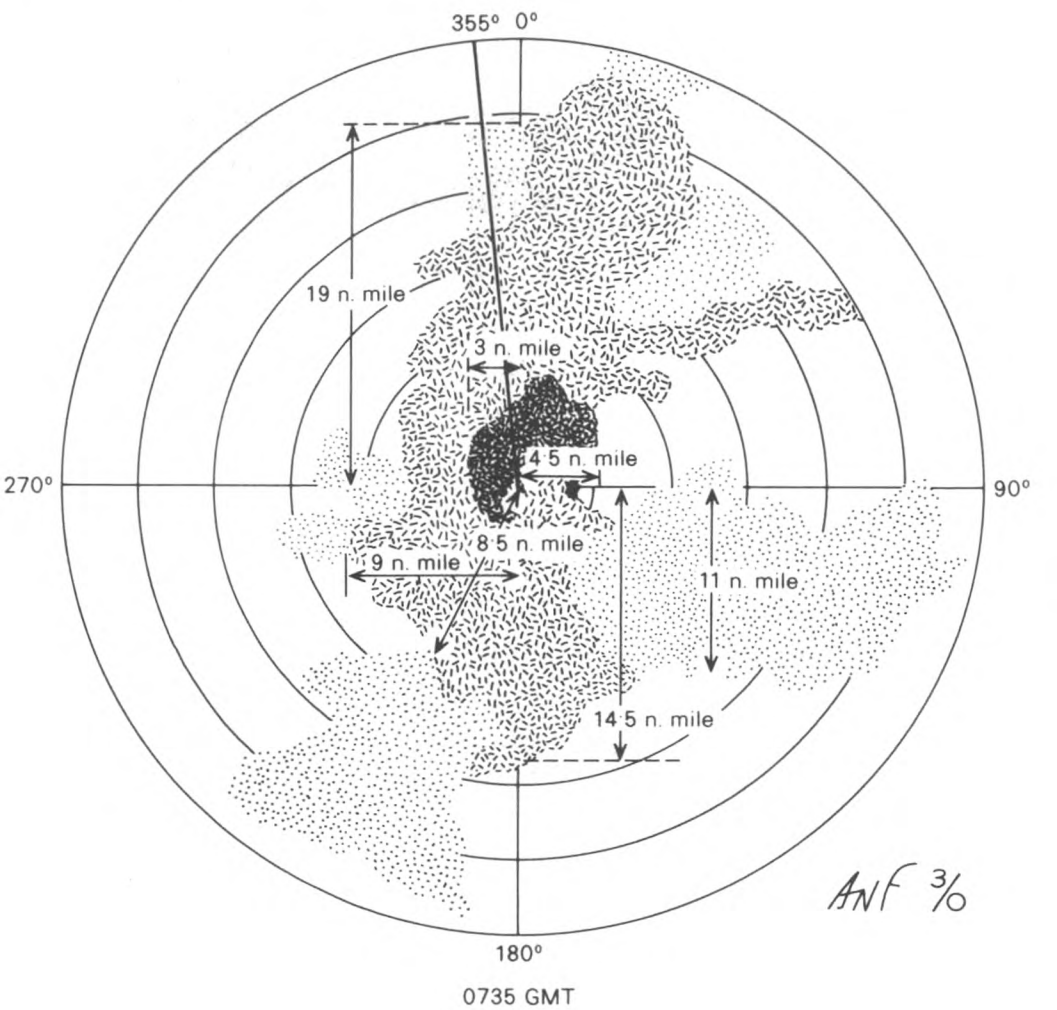
ELECTRICAL STORM

Eastern North Atlantic

m.v. *Pacific Peace*. Captain P. V. Hunter. Newcastle N.S.W. to Antwerp. Observers: the Master, Mr A. N. Fairchild, 3rd Officer, Mr G. S. Graham, Radio Officer and ship's company.

16 August 1985. A severe electrical storm began at 0705 GMT. The following conditions were experienced during a period of about one hour.

The pressure rose sharply by 1·0 mb to 1012·1 mb, no increase was noticed in the wind speed; it remained variable, force 2–3. Visibility was nil and there were loud rolls of thunder with sharply defined lightning close to the vessel. Both the air temperature and the wet bulb read 22·8°C thus giving a relative humidity of 100 per cent. The sketch shows the radar picture at 0735, the set in use was the 10–cm Sperry Seathru ID 1611–1 on the 24-n. mile range (no clutter setting to enhance the observation).



0735 GMT

At 0810, the visibility was steadily improving at 5·5 n. mile and the storm was on the port quarter. No changes were noticed in the wind, and the pressure had steadied at 1012·5 mb. At this time, the air temperature was 23·0 and the wet bulb 22·4.

Between the above times, the radio was rendered useless due to massive interference, and excessive clutter on both the 3 cm and 10 cm radars rendered the former virtually useless and provided only limited use of the latter. Both radars were known to be in excellent working order.

Position of ship at the onset of the storm: 14° 47′N, 18° 00′W.

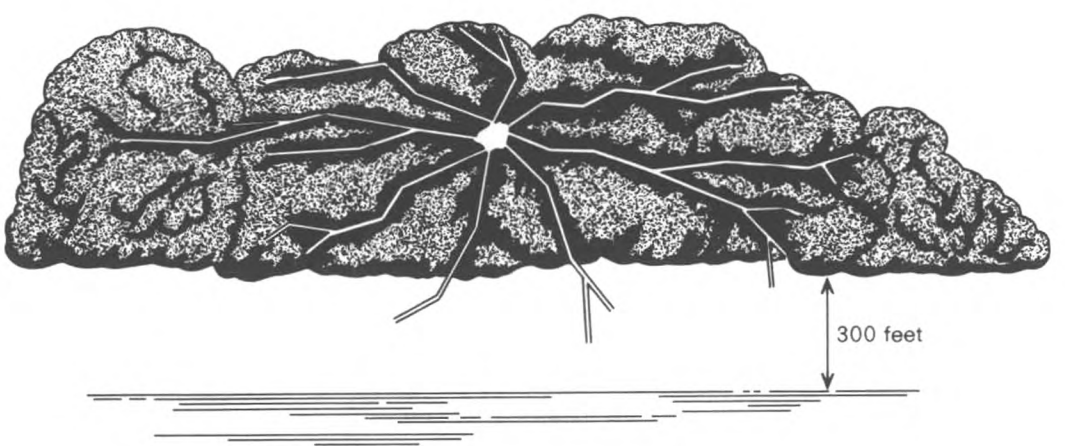
LIGHTNING

Strait of Malacca

m.v. *Staffordshire*. Captain C. O. Thomas. Yanbu to Yeosu. Observer: Mr A. J. Malpass, 2nd Officer.

21 July 1985. Between 2000 GMT and 2200 GMT whilst the vessel was transitting the Strait of Malacca in a south-easterly direction, the following phenomenon was observed.

For several hours lightning had been seen ahead of the vessel. As we approached, it appeared to take on several forms, the most interesting of which is shown in the sketch. It had the appearance of a central point of light with



ragged streaks radiating from the centre in a mainly horizontal direction. At no time did this lightning reach the sea surface. This type was observed about ten times during the period of observation; single horizontal streaks were also seen, but the most frequent type was forked lightning mainly reaching the sea.

Weather conditions at the time were: dry bulb 27·0°C, pressure 1007·8 mb, the night was moonless and overcast with light rain, also light airs. Visibility was 40 n. mile.

Position of ship at 1800 GMT: 04° 24′N, 99° 00′E.

Note. Dr C. P. R. Saunders, of the University of Manchester Institute of Science and Technology, comments on electrical observations at sea as follows:

'Observations of thunderstorms over the oceans have not been as widely reported as those over land, for obvious reasons. Also, it has been easier for scientists to study land-based thunderstorms and so our theories of thunderstorm electrification processes, for example, are strictly applicable to the land situation only. It was with some surprise therefore, that recent ship-borne studies of winter thunderstorms over the Sea of Japan revealed that cloud-to-ground lightning brings positive charge to ground. ("Ground" really means "sea" in these cases!) Usually, summer, continental lightning brings negative charge to ground.

'Also, our estimates of the total number of thunderstorms active at any one time over the globe have been in serious error; satellite and space-shuttle observations are now correcting this situation. Nevertheless, it would be helpful to know the number of lightning flashes to ground, the number of in-cloud flashes and to know how the ratio of these numbers changes throughout the life of a storm at sea. (A flash often comprises several strokes which occur in the same lightning channel within a period of less than one second.)'

ICEBERGS

Western South Atlantic

m.v. *Australian Venture*. Captain A. F. Woollacott. Port Chalmers to Flushing. Observers: the Master, Mr A. E. Beale, Chief Officer, Mr G. Richter, 2nd Officer, Mr G. A. Prosser, 3rd Officer, Mr P. Waller, Cadet and ship's company.

27 September 1985. At 1410 GMT an iceberg was sighted. We approached it from the southern (steep) side, and it was sighted by radar at 13 n. mile, and visually at approximately 11 n. mile. It was estimated to be about 220–250 m long and 40–50 m high, with a section to the north at sea level (see photograph opposite page 128). The berg was weathered smooth on the saddles and was opaque at the northern edge. Large fissures were noted on the steep southern edge with what appeared to be a crack through the berg from west to east. Numerous small growlers were evident to the north of the berg and it is believed that these were pieces broken off the main one.

At 1520, eight smaller growlers and bergy bits were sighted spread over about 6 n. mile, the ship's course between sightings being 031°. These smaller bergs were visible on the radar and by eye at about 8 n. mile. Several were very low in the water and hard to locate as they were very weathered. We believe these were also pieces of the main berg.

Weather conditions at the first sighting were: air temperature 7·7°C, wet bulb 6·5, sea 4·0 decreasing to 1·0 within 1·5 n. mile of the berg. Pressure 1012·9 mb, wind w'ly, force 3–4. Sky cloudless.

Position of ship at first sighting: 48° 54′S, 54° 23′W.

Position of ship at 1520 GMT: 48° 42′S, 54° 04′W.

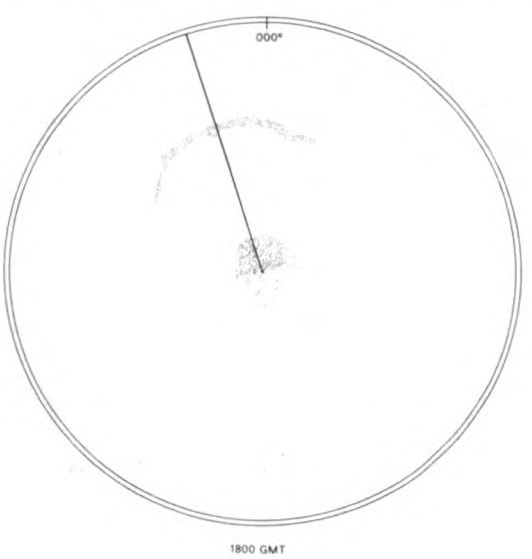
Note. The *Australian Venture* is a Selected Ship of the Australian Voluntary Observing Fleet.

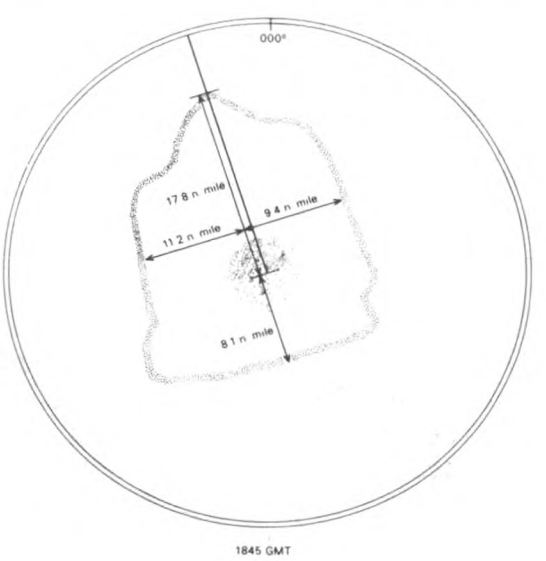
RADAR ECHOES

Red Sea

m.v. *Botany Bay*. Captain A. J. Leslie. Fremantle to Jeddah. Observers: the Master, Mr T. A. Davies, 3rd Officer and Mr P. J. Dever, Seaman 1.

1 August 1985. At 1800 a crescent-shaped trace of spurious echoes appeared about 15 n. mile ahead of the vessel, see first sketch. This gradually developed, in an encirculating manner, until, by 1845 the echoes had totally surrounded the vessel, see second sketch. The effect looked like, or could be likened to a plan





view of a black island with sandy beaches around its perimeter. The echoes were significant with strong contrast and could even have been mistaken for land on the radar. The effect could not be removed or diminished by changing range scales, motion modes, gain, tuning or perhaps most significantly, altering the pulse lengths. An identical effect was observed on the vessel's independent ARPA radar.

The Master commented that although false echoes were invariably encountered in this region, he had not seen one such as this, which actually 'encapsulated' the vessel within the PPI of the radar. By 1935 the false echoes had dissipated into isolated batches splayed randomly across the screen.

Weather conditions at the time were: air temperature 33·1°C, wet bulb 25·1, sea 33·5, pressure 1001·8 mb steady, wind NW'N, force 4. Horizontal visibility was 15 n. mile, and there was a slight sand haze.

Position of ship: 16° 41'N, 41° 06'E.

WHALES

North Sea

m.v. *Washington*. Captain D. Patrickson. Amsterdam to Esbjerg. Observers: the Master, Mr D. Lees, 2nd Officer and Mr K. Whitelaw, Chief Engineer Officer.

13 September 1984. At 0730 GMT whilst in the approaches to Esbjerg harbour, a large white dolphin-like animal about 3–4 m in length was seen.

According to the Pilot, who described the creature as a 'white whale', it had been reported in the vicinity over the past year.

Position of ship at 0000 GMT: 54° 30'N, 06° 48'E.

Note. Mr D. A. McBrearty, of the Department of Anatomy, University of Cambridge, comments:

'This is most interesting in that this polar species is seldom found as far south as this. It is normally found in coastal waters throughout the arctic, and when winter ice conditions close in, these whales drift south to avoid entrapment. They will often enter fresh water rivers, and known concentrations occur annually in the Saguenay River in eastern Canada, and in others farther north. Some years ago, a Beluga (*Delphinapterus leucas*) was sighted a considerable way up the River Elbe, and an unconfirmed sighting was reported off the coast of Ireland, but these, like the present sighting, are uncommon.'

North Atlantic Ocean

m.v. *Hampshire*. Captain P. S. Bytheway. Point Lisas to Montoir. Observer: Mr F. J. C. Kelly, 3rd Officer.

24 August 1985. At 1020 GMT a splash was observed on the port side. Moments later, the culprits revealed themselves to be three whales jumping from the water. In this instance, the whales did not completely clear the water, but raised only about three-quarters of their bodies above the surface.

Two of the group were approximately 7·5 m in length, whilst the third one was estimated to be about 4·5 m long. All three were dark grey in colour with a small fin behind the middle of the back, they had wide, bulging foreheads and rather small but easily distinguishable beaks.

Whether Bottlenose Whales are to be found in this area or not, I have no idea, but the three whales observed would appear to fit the bill extremely well.

At the time of observation the wind was N'ly, force 3, and there was a 2-metre swell.

Position of ship: 41° 03'N, 27° 38'W.

Note. Mr D. A. McBrearty comments:

'The observer suggests Bottlenose Whales and although I believe this particular group of three were beaked whales, I suspect they were more likely to have been Cuvier's Whale (*Ziphius cavirostris*) than Bottlenose Whales (*Hyperoodon ampullatus*). Bottlenose Whales do show a north-south migration between spring and autumn, but I think that in August they would still be farther north than the Azores. Cuvier's Whale is a temperate waters animal which has, unlike the Bottlenose Whale, often been seen to breach or leap completely out of the sea.'

Western North Atlantic

m.v. *Hoegh Duke*. Captain W. A. Wilson. Keelung to Los Angeles. Observer: Mr D. P. Webb, 2nd Officer

16 July 1985. At 0400 GMT there was a sudden large splash about 0·5 n. mile off the starboard bow, closely followed by a second one as a large, black shape lifted clear of the sea surface and 'belly-flopped' back in, throwing spray in all directions, including a plume of blood-red water off to one side. The square head, small dorsal fin and forward-projecting identified this as a Sperm Whale of a fair size, possibly 10–12 m long. It was apparently feeding and travelling in a westerly direction. The animal sounded shortly afterwards and was seen no more.

After a short interval, 'Act II' commenced. This time, two animals close together, were seen lolling on the surface, close to the ship. One was 9–11 m long, while its companion was slightly smaller, both were black. As they were only 6 m from the ship's side, a good comparison of size could be made with the containers stowed on deck, and they were about two-thirds the width and two-thirds the length of a standard I.S.O. twelve-metre box. These two, also identified as Sperm Whales, each produced a cloud of murky brown fluid and sounded rapidly — no doubt somewhat startled by 35 000 tons of oceanic splendour hurtling past.

A few minutes later, another pair of Sperm Whales was seen, on the other side of the ship and a little farther off, 180 m at the most. Heads rising above the surface, their very rectangular characteristic profiles were clearly seen. Both 'blew' with a forward-projecting cone of spray. As they arched their backs to sound, the small dorsal fin was obvious. With a final flick of their flukes, the animals were gone, both having been estimated to be about 9 m long.

Apart from the first, single (feeding?) sighting, the whales appeared to be idling on the surface and not travelling in any particular direction. It was an interesting half-hour.

Weather conditions were: air temperature 27·5°C, wet bulb 25·0, sea 25·5. There were three oktas of cloud.

Position of ship: 30° 26′N, 147° 35′E.

Ceram Sea

m.v. *Fort Garry*. Captain M. Allen. Kwinana to Bitung (Sulawesi). Observers: Mr C. P. M. Lucas, 2nd Officer and Mrs S. Begley, passenger.

24 July 1985. At 0730 GMT, up to twenty large whales were observed within an area of five to six square miles. A number of them passed very close to the ship — some 30 m to 60 m aft, and, with reference to the *Sea Guide to Whales of the World* by Lyall Watson, were identified as Blue Whales, *Balaenoptera musculus*. They were 20–30 m long and blue-grey in colour with very long backs and small, stubby dorsal fins. No flukes were observed on any animal sighted, and there was no humping of the back in any individual's behaviour.

All the whales seemed to be proceeding in a south-westerly direction between Sanana Island and Buru Island.

The weather was very clear but overcast and the sea-water temperature was 28·0°C.

Position of ship: 02° 32′S, 126° 09′E.

Note. Mr D. A. McBrearty comments:

'Reports of Blue Whale sightings are always of particular interest. I think most seafarers are now aware that the Blue Whale is the largest animal ever to have lived on earth and although its numbers are greatly depleted from what they were before the advent of fast catcher boats and the explosive harpoon gun, it is still some way from extinction.

'Blue Whales in this area during the southern hemisphere winter period are, in all probability, migrants which have travelled up from the Southern Ocean to breed in the warmer waters. Later in the year, other Blue Whales could be in the same area, but this time from northern seas. Some would perhaps continue through the region into the northern Indian Ocean before returning, others may not. It is unlikely that any overlap or transfer occurs between the different populations as those from the south would be returning to their southern feeding grounds before the northern migrants arrived.'

SEALS

South African Waters

m.v. *ACT 7*. Captain D. M. McPhail. Rotterdam to Melbourne. Observers: Mr D. G. Robbie, 3rd Officer, Mr N. R. Smirk, Radio Officer, Mr M. J. McMahon, Cadet, and Mr A. Williams, A.B.

17 August 1985. At 0620 GMT, a group of approximately six seals was seen out on the starboard bow. They were swimming along close to the surface, occasionally dipping their heads under the surface and appeared to be heading in a north-westerly direction. They came within 30 m of the ship's side and it was estimated that they were about 2 m long, dark in colour, possibly black, but more likely a very dark brown and with lighter markings on the body, although these were indistinct.

As the animals came abeam, all stopped swimming and raised their heads out of the water, apparently out of curiosity, before continuing on their course. It was noted that the seals had no prominent whiskers and one or two had very small ear flaps which were not noticed on the rest. The head appeared fairly small compared with the body length, and the front flippers were fairly pointed and were less than 30 cm long.

When crossing the ship's wake, they were observed to ride up on the waves and then flip the rear of the body into the air to dive almost vertically before surfacing a few metres up ahead.

Some ten minutes later while we were watching a group of albatrosses and petrels sitting on the water fine to starboard, a solitary seal was observed breaking the surface in the midst of them and then caught one of the petrels and pulled it under the water. There followed a few minutes of frantic activity on and under the surface. The seal thrashed the water with its hind flippers and occasionally jumped clear of the water. The other petrels scattered at this point, but the albatrosses remained, and when the seal got too close it was rewarded with a sharp stab from the albatross's beak. As the seal came abeam some 21–24 m away, it was noted to be similar to the others although perhaps slightly longer at 2·5 m, and definitely darker whilst having the same basic body proportions. It then leaped clear of the water, and almost turned round in

circles in mid-air while snapping its jaws (its behaviour resembled that of a dog 'worrying' an old bit of rag). We did not know if it had the petrel due to the disturbance of the water, but it had not been seen since if first went under.

During the next thirty minutes, a further ten seals were observed, comprising two more solitary seals and four pairs. One of the pairs was also seen to attack petrels sitting on the water, dragging one under, but this time the bird escaped as it was seen seconds later leaving the water at great speed and at a rather steep angle with one seal in hot pursuit, however, it managed to get away safely.

It was thought that a seal had been seen in this area on a previous voyage. The book *Seals of the World* by Judith E. King (Oxford University Press) is carried on board, and reference to it showed that one species of seal *Arctocephalus pusillus*, the Cape Fur Seal is common in the area, and although there is only one picture in the book, it was thought that the seals would have fitted the description given; apart from those which were observed to attack birds that is, as King makes no mention of this in her section on *A. pusillus*, plus the fact that these animals were definitely larger. Leopard seals are known to attack birds, but our animals were sighted with light on them at the wrong angle and no indication of the colouring could be seen, although their behaviour could definitely be described as aggressive.

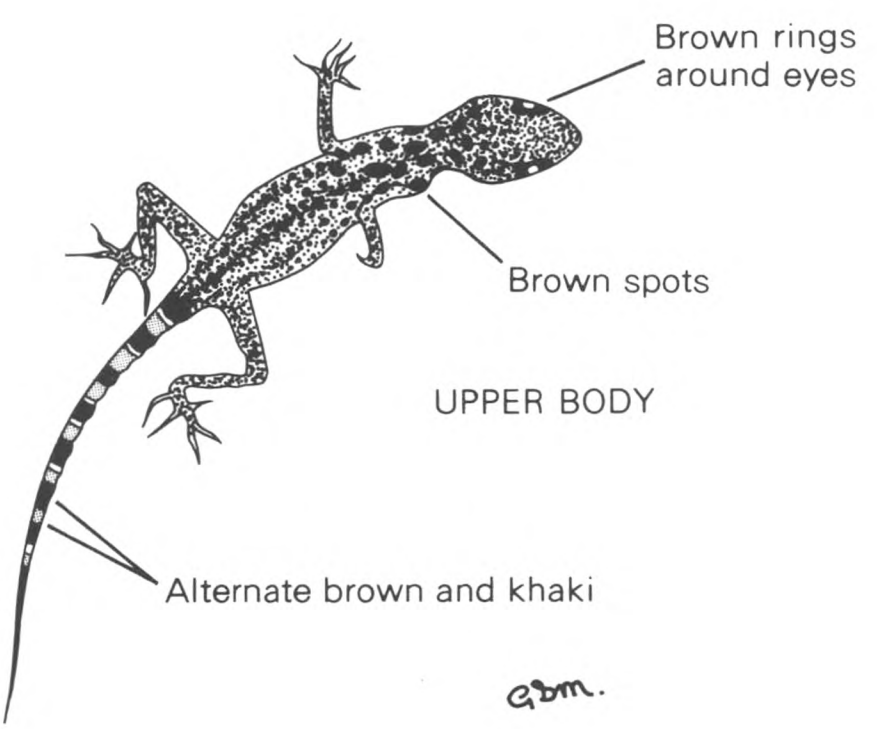
Position of ship: 35° 07′S, 19° 05′E.

LIZARD

Bass Strait

m.v. *Discovery Bay*. Captain B. V. Chipperfield. Alongside, Melbourne. Observers; the Master, Mr D. C. Slack, 2nd Officer and members of the ship's company.

15 September 1985. The lizard shown in the sketch was found on the main deck when the vessel arrived in Melbourne.



The predominant colour was a khaki-brown along the back, becoming lighter on the underside and with the central strip of the abdomen being coloured white. The darker spots on its back were a dark chocolate brown and these increased in size with the largest one near the head. Dark brown rings also surrounded the eyes. Its tail seemed to be segmented with each being alternately coloured dark brown and khaki, ending with dark brown at the tip.

The skin along the back was very rough with regular ridges running along its length; these were regularly broken by single, pimple-like points of skin. However, the abdomen was smooth and scaled and could be more likened to the skin of a fish.

From head to tail, the lizard measured 10·6 cm, it was 1·0 cm wide across the head and 1·5 cm wide across the back.

Position of ship: 37° 50′S, 144° 48′E.

Note. Mr C. McCarthy, of the Reptile Section, British Museum (Natural History), comments:

'I have tentatively identified the specimen as a Bynoe's Gecko (Heteronotia binoei), a common lizard found in a wide variety of habitats throughout most parts of Australia (except for humid areas in the south-west and south-east).'

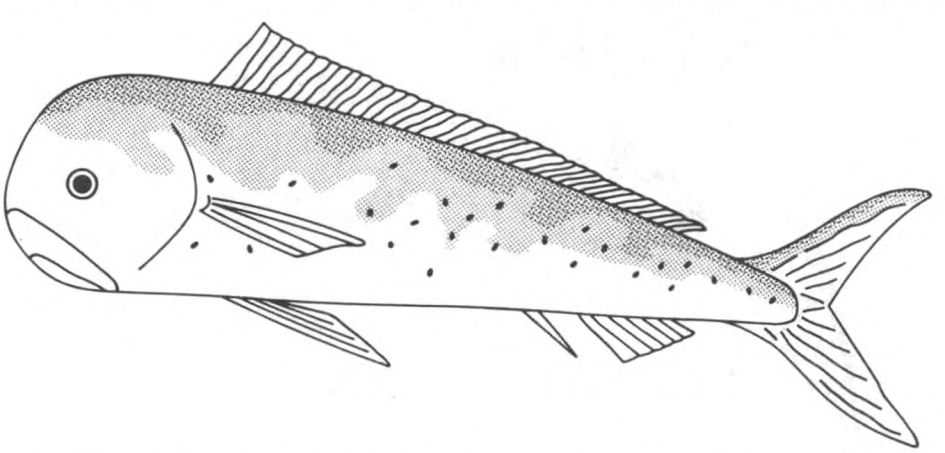
FISH

Eastern North Pacific

m.v. *Hoegh Duke*. Captain W. A. Wilson. U.S. west coast passage. Observer: Mr R. Morrison, 3rd Officer.

9 August 1985. At 0330 GMT, whilst the vessel was in an area of calm sea, a fish between 40 cm and 60 cm in length was observed ahead of the ship. It swam to the starboard bow-wave and after a very brief interval, say one second, launched itself through the bow-wave towards a small group of flying fish that were airborne having been disturbed by the vessel's progress. The larger fish appeared to be in direct pursuit of the flying fish and was observed to clear the water at each successive wave in the series set up by the ship's bow. It left the water a total of five times, swimming very fast and powerfully, but did not reach the flying fish which appeared to take an evasive 90° turn in the air, and also a series of rapid turns under the surface.

The fish had brilliant 'electric blue' coloured pectoral fins, a green-brown mottled back and yellow flanks which appeared to have spots. The lateral line was not discernible. A particular feature was the very high forehead, and also the long dorsal fin, both of which are shown in the sketch. It was unusual to see



a fish swimming towards a large vessel, then seemingly use it as part of an ambush.

These, or a similar fish in size and description have also been observed on previous voyages in the northern Arabian Sea, often associated with large pieces of flotsam.

Position of ship: 25° 22′N, 129° 30′W.

Note. Dr F. Evans, of the Dove Marine Laboratory, University of Newcastle upon Tyne, comments as follows:

'The lively drawing is of a Dorado, also called a Dolphin-fish, although the latter is a confusing name which I prefer not to use. These fish are, as the report indicates, very fast swimmers. I too have seen them leap out of the water in pursuit of flying fish and have wondered at this. Are they attempting to sight their prey in the air.? It would take a remarkable fish eye to do so, one that must work both above and below the waves. Yet there seems no other reason to leave the water.

As to similar fish in the Arabian Sea, the species (there are two kinds of Dorado, *Coryphaena hippurus* and *C. equiselis*, both very alike) are world-wide in warm water. They are attracted to floating objects for some reason, a fact known to fishermen, who are ever on the lookout for flotsam when hunting them.'

BIRDS

St George's Channel

m.v. *Lincolnshire*. Captain J. K. Allison. St Bride's Bay anchorage, Wales. Observers: Mr S. J. Kitchen, 2nd Officer, Mr I. D. Gordon, 3rd Officer and Mr G. J. Simpson, Radio Officer.

4–5 July 1985. A dull 'thud' was heard at 2330 (ship's time) outside the wheel-house, and upon investigation, a dazed-looking Manx Shearwater was found on the deck.

This bird was joined by another on the 'monkey island' that flew into the mast, then another and another, until quite incredibly, the whole immediate vicinity was swarming with them. Altogether, an estimated number of not less than three hundred were noted, some in the water, others flying haphazardly around the ship until they literally flew into something, like a derrick or the accommodation. Once 'beached', they could not take off on their own accord and numerous individuals had to be 'thrown' over the side. The birds which landed on the main deck managed to waddle their way to the ship's side and launch themselves. One bird scrambled off the poop into the darkness and was heard to fall into the sea; immediately, it took off again and landed back on the poop by way of striking the starboard derrick! Around its right leg was an aluminium-looking tag — unfortunately this could not be read as the bird departed once more.

The birds stayed with the ship until around 0500 GMT on the 5th. Later, at 1330, a single bird was found in the bilge of the port lifeboat just as the permanent painter was going to be coiled down on top of it. It was quite trapped in the bilge behind the hook supports and offered no resistance when an attempt to rescue it was made. When set down on one of the benches, it stayed for five minutes or so. Typically, just as a photograph was going to be taken, it made a leap for the thwart where our precariously perched photographer was balanced on one leg (just as it leaped forward, he fell backwards). After this attempt to cripple our photographer (the Radio Officer), it was launched over the side and flew quite happily seaward.

The weather at the time was heavily overcast with moderate rain and the visibility was reduced to about 3 n. mile. The wind was generally from the north, force 2–3.

During the evening of the same day, the Radio Officer decided to walk up to the 'shack' outside the accommodation to see if any more Manx Shearwaters were stranded on the decks. No such birds were found. However, in the empty swimming pool beneath the safety net, a solitary Atlantic Puffin was seen desperately trying to escape. It could leap only about 30 cm off the bottom and thus was trapped.

By this time, the ship's company had been put on full alert while plans as to its freedom were conceived in the wheel-house. Firstly, a photograph was in order, and so our intrepid photographer was despatched. Whilst attempts to photograph it were made, it was seen that the bird would be very difficult to catch as its frequent scurrying kept our cameraman quite busy. A picture of the puffin appears opposite page 113.

Finally, it was decided to float the bird out! Gradually, the swimming pool was filled; this seemed to settle the bird because it dived and played in the stream of water filling the pool. The onlookers were quite captivated by the charming little bird, which by now was clean, having previously been covered in soot from the funnel.

By the time the pool was almost full, the puffin realised it could jump from the water to the surrounding deck, which it did. Quickly, it found the ship's side and duly flew away to seaward leaving us marvelling at this beautiful little bird.

The puffin was an adult in breeding plumage with a yellow wattle at the base of the gape.

Position of ship: 51° 47′N, 05° 15′W.

Note. Captain A. S. Young, of the Royal Naval Birdwatching Society, comments:

'There are several sub-species of Manx Shearwater (*Puffinus puffinus*) mainly peculiar to the area in which they are observed, quite widely scattered. These would have most likely been the North Atlantic Shearwater (*P. p.puffinus*), although the Balearic Shearwater (*P. p. mauretanicus*) may disperse from the Mediterranean to this area though quite well north. The North Atlantic Shearwater breeds on Skomer and Skokholm in quite considerable numbers, which makes it the obvious candidate. Why the "kamikaze-like" behaviour? They should not have been so disorientated in these conditions, 3 n. mile is not too bad. Perhaps they were "first crop", inexperienced youngsters. It was a pity you couldn't note the ring information, ringing of course does take place on these islands. No doubt the shearwater was thankful for the assisted "lift-off".

'Puffins are indeed endearing little chaps, especially in breeding condition when the bill is at its most colourful. The Atlantic Puffin (*Fratercula arctica*) is of course our local breed and is quite numerous around our coasts, at least in the west, east and north, with not so many in the Channel. I liked the idea of "floating him off the blocks", rather a huge dry-dock in proportion. Unfortunately, along with other members of the Auk family (Alcidae), puffins suffer considerably from the effects of oil pollution.'

North Sea

m.v. *Seagair*. Captain R. Lanz. On station, Magnus Oil Field. Observers: Mr I. G. Chadwick, 2nd Officer and Mr W. Stewart, Seaman 1.

1 September 1985. Two small birds were found on board, suffering from what appeared to be exhaustion or hypothermia, they were waterlogged and shivering, and when placed in the shelterdeck, each took its turn to cover the other with its body (the changes in position between the birds lasted 2–3 minutes each).

Using the *Hamlyn Guide to British and European Birds*, they were provisionally identified as Ringed Plovers. They were about 14 cm long, and about 12 cm from deck level to the top of the head. The undersides were white, while the back was a light brown, and the tail was dark brown almost black as

were the trailing edges of the wings, above which were the characteristic white wing bars. Around the neck was a dark brown ring above which was a white band, narrow at the back, but broader at the front where it extended the underside of the beak. The remainder of the head ranged from dark brown above the white neck band, fading to the same colour as the back on top of the head. Above the beak and in the centre of the forehead, was a white patch which split the dark brown colour. Around the eyes, the colouring was dark brown/black except for a small triangular white flash behind each. However, the beak was not orange-tipped as suggested by the book, but wholly black, and the legs and feet were a dirty beige colour.

The birds were brought inside into a warm room for two hours and given fresh water and bread. They picked at the bread but appeared to ignore the water. Then they were returned to the shelterdeck where they remained out of the rain. Later, the birds flew outside, where unfortunately they were lost from sight.

Position of ship: 61° 36′N, 01° 18′E.

North Atlantic Ocean

m.v. *Caspian Universal*. Captain R. R. Cawdery. Sheerness to Tela (Honduras). Observers: Mr R. J. Kendall, Chief Officer, Mr D. B. Flood, 3rd Officer, Mrs L. Flood, Mrs S. Short.

11 September 1985. At 1512 GMT the Chief Officer noticed a smallish bird trying to keep up with the ship.

Upon investigation with binoculars, we noticed that it was not a seabird, but looked more like a woodpecker or an overgrown kingfisher.

Ten minutes after the first sighting, the bird managed to land on the foremast on a level with the bridge. Using this as a guide, we estimated the bird to be about 20 cm long from the tip of its beak to the tip of its tail. As shown in the sketch, the bird had a black, pointed beak, a very distinctive black cap and a

grey face. It had a white collar which began under the cap and became broader under its chin towards the beak. The underside of the body was completely white as was under the wings. There were black tips on the wings, and next to these was a white bar. The rest of the bird, that is, all the back, tail and top of the wings was a blue-grey colour, we could not see the shape of any feathering. The tail was short and was noticed to be slightly forked when the bird was flying.

This bird stayed on the mast for about ten minutes, then flew alongside and around the vessel for another thirty minutes before flying away in a SW'ly direction at about 1600, moving its wings in a short, quick motion.

It was obviously a land bird, but we only had books on seabird identification on board, so we had no idea as to its type. If it was a woodpecker, it probably found our foremast a poor substitute for a tree 280 n. mile from Puerto Rico!

The wind was E'ly, force 5, the sky was clear.

Position of ship: 21° 53'N, 62° 10'W.

Note. Commander M. B. Casement comments,

'Excellent sketch, although the description does not tally in some respects. My best guess is a Belted Kingfisher (male, the female has a red "belt") *Ceryle alcyon*. This is the most common kingfisher throughout continental U.S.A. and the West Indies.'

BUTTERFLY

Mediterranean Sea

m.v. *British Success*. Captain D. E. Mitchell. Gibraltar to Port Said. Observers: Mr A. K. Birley, 2nd Officer and Mr J. W. Gough, 3rd Officer.

9 July 1985. At 0000 GMT whilst the vessel was drifting and awaiting orders, two butterflies were found in the wheel-house. They had brown bodies measuring 2·5 cm in length, whilst the antennae were approximately 1·5 cm long with yellow-white tips to them. The legs were white. The undersides of the wings were a pale brown, with the fore-wings having a slight orange tinge. Five distinct eye-spots were discernable on the trailing edge of the hind-wings. On the upper wings, the colour was mainly a reddish-brown, but the tips of the fore-wings were black with white markings, while the hind-wings were a mixture of orange, red and brown with black spots. The wing-span across the tips was approximately 5 cm.

Both butterflies stayed in the wheel-house during the night, but had disappeared by morning. They were believed to have been of the Painted Lady species.

Weather conditions at the time were: dry bulb 24·0°C, wind variable, force 1, sky clear.

Position of ship: 35° 50'N, 15° 52'E.

Note. Mr P. R. Ackery, of the Butterfly Section, Department of Entomology, British Museum (Natural History), comments as follows:

'I think we can confirm that they were indeed the Painted Lady (*Vanessa cardui*), perhaps the most cosmopolitan of all butterflies. It is a common migrant in Europe, spreading northwards each year to re-populate its northern range. Few specimens, if any, survive the rigours of the winter in these more temperate regions.'

INSECT

South China Sea

m.v. *Cardigan Bay*. Captain R. J. Bland. Tokyo to Southampton. Observers: Mr R. B. Gurney, 2nd Officer, Mr B. A. Mullan, Radio Officer and Mr C. D. Mercer, Leading Seaman.

20 July 1985. The insect shown in the photograph opposite page 113 was discovered on the forecastle. It was dead when found at 0800 GMT.

Position of ship: 16° 08′N, 118° 05′E.

Note. Mr W. R. Dolling, of the Department of Entomology, British Museum (Natural History), comments:

'The insect is a Giant Water Bug. There are quite a few species of this group, and this one, which has the scientific name *Lethocerus indicus*, is one of the biggest. We have had this same species submitted from ships in the Indian Ocean and the Gulf. All Giant Water Bugs are carnivorous and live in fresh water or slightly salt water, but not in the sea itself. They feed on insects, fish and frogs and have a painful bite. They fly at night and are often attracted to light. The Americans call them "Electric Light Bugs" or "Toe-biters".

'They are sometimes seen on sale in food markets in south-east Asia — I don't fancy them!'

DRAGONFLIES

Eastern North Atlantic

m.v. *Pacific Peace*. Captain P. V. Hunter. Newcastle N.S.W. to Antwerp. Observers: the Master, Mr S. J. Crawford, 2nd Officer, Mr A. N. Fairfield, 3rd Officer, Mr C. A. Clapp, 4th Officer, Mr E. A. Parker, 3rd Engineer, and all other members of ship's company.

15 August 1985. At approximately 1900 GMT, thousands of dragonflies appeared on the vessel. (We were not certain how many exactly, but definitely thousands.)

There had been heavy showers throughout the day, but no sign of insects. At the termination of the rain they began to appear, and by 2300, were beginning to quieten down and settle on various parts of the ship's floodlit superstructure. Between 0300 and 0700 on the 16th, they again became engaged in frantic activity whereupon they started to die in droves, and by 1000, there were only a few left alive.

There were two distinct types as shown in the photograph opposite page 129. One type was very large, formidable-looking and slim-bodied, of which only four were seen throughout the vessel. The other type was a 'medium sized' common dragonfly of which there were thousands.

Weather conditions were as follows: air temperature 27·0°C, wet bulb 25·0, wind, light SE'ly, force 2–3. This was an unusual direction for the NE Trades 'area', with the wind blowing off the Arquipelago dos Bijagos (Portuguese Guinea), could it be the answer to this unusual infestation?

Position of ship: 12° 30′N, 17° 50′W.

Note. Mr S. Brooks, of the Department of Entomology, British Museum (Natural History), comments:

'I was very interested to read this account. The large specimens are *Anax tristis*, belonging to the family Aeshnidae; the species occurs over most of tropical Africa. The medium-sized dragonflies

are, in fact, two different species belonging to the family Libellulidae. In the photograph, the centre specimen, with a small, dark spot at the tip of the wings, is *Pantala flavescens*. This species occurs in tropical regions throughout the world and has been dubbed the "Globe Skimmer" because of the long migratory flights it undertakes. The other species can be identified on the photograph showing several dozen specimens on the ship's superstructure [unfortunately, this picture was not suitable for reproduction], by the dark brown and yellow spot at the base of the hind-wing. This is *Trамea basilaris* which is also noted for its migratory flights. It occurs throughout Africa and eastwards to India.

'These species have a relatively broad base to the hind-wing which enables them to glide for considerable distances so that they can conserve energy which would otherwise be expended during active flight. They follow weather fronts so as to arrive at a locality just after it has rained and there are plenty of pools available in which to lay their eggs. The larvae develop very rapidly and the adults are ready to emerge before the pools eventually dry up.

'It is interesting that all the dragonflies began to die on the day following their arrival on the vessel. I cannot say why this should be, unless they were utterly exhausted and had not fed for several days. The photographs will be very useful for record purposes.'

BIOLUMINESCENCE

Equatorial Eastern Pacific

m.v. *Bolnes*. Captain R. W. H. Dole. Panama to Newcastle, N.S.W. Observers: Mr C. W. Milne, 3rd Officer, Mr. E. Griffiths, SG1A and Mrs H. Milne.

9 August 1985. Between 0430 GMT and 0700 GMT, bioluminescence was visible at the vessel. Several differing types were observed: firstly, the bow wave became a light opaque blue, and on several occasions, pulsed along about 10 m of its length; along the ship's hull, a band of around 0·5 m wide formed and surrounded the vessel, this did not pulsate but remained a light green colour; thirdly, to a distance of perhaps 75 m around the vessel, but more noticeable to starboard (the lee side), patches of no more than 20–30 cm in diameter 'exploded' to light on the surface while giving off a shade of vivid luminous green. Some of these patches could be detected several seconds before they 'burst' as a faint light below the surface, growing in intensity until they exploded. The final type observed was vast patches of light, which were of a light blue/green colour and containing vivid lime-green scores and lines. This latter type was continuous but had spots exploding on the surface as the wake churned.

The bioluminescence was not affected by flashing or constant light from an Aldis lamp switched on every twenty minutes. The radar (10 cm) was switched on and off a couple of times, again no difference was noticed. However, on emptying the sea surface observation water on to the deck, it appeared to show a milky-white trace. Another sample was taken and placed in a glass jar and shaken well, this caused the water to glow with a green colour. Six samples were treated this way, three gave off luminescent light. Unfortunately, it was not possible to stop the engines and look for a reaction.

Position of ship: 02° 41′S, 111° 19′W.

Note. Dr P. J. Herring, of the Institute of Oceanographic Sciences, comments as follows:

'The flashing of the water sample indicates that very small organisms were involved, probably Dinoflagellates. These probably formed the main source of the light along the vessel's side and in the bow wave, the pulsing effect perhaps produced by sequential shock waves. I cannot interpret the "exploding" patches except to suggest that as luminous dinoflagellates often accumulate at the surface, any small shoal of organisms coming up from below and spreading out at the surface could produce a similar effect.'

Opposite page 128

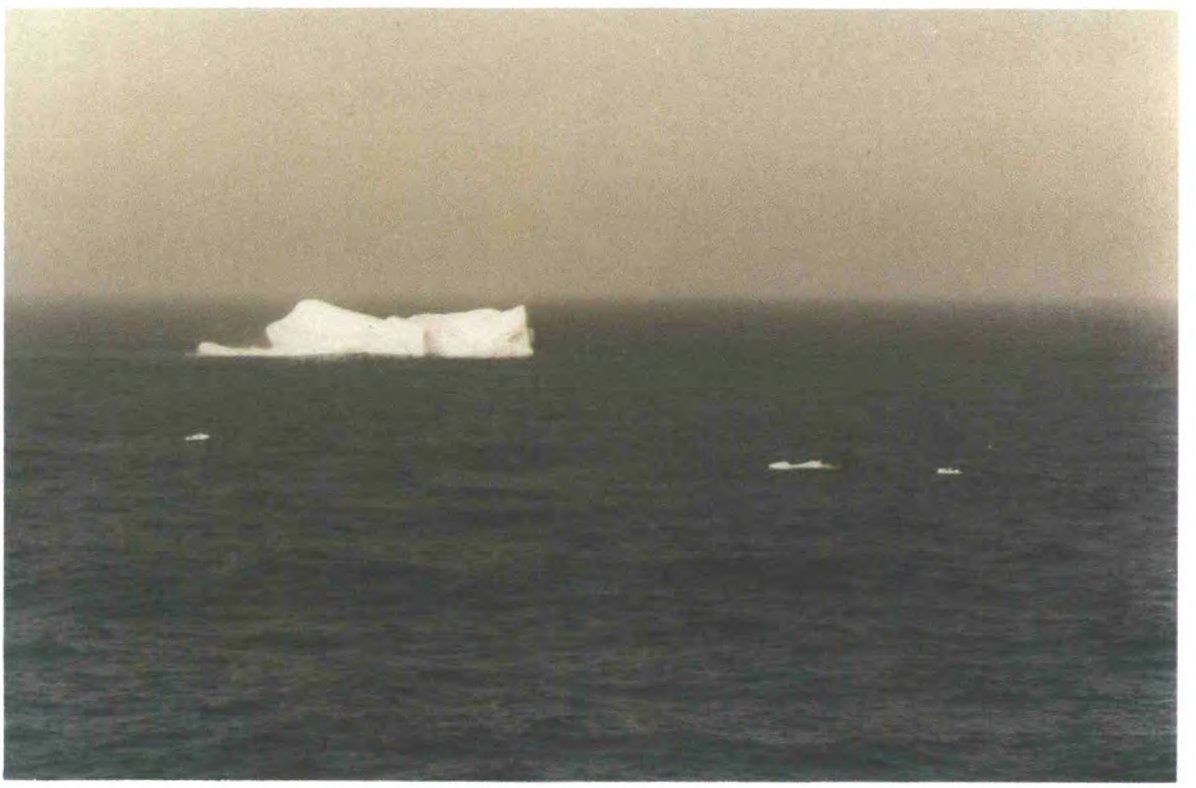
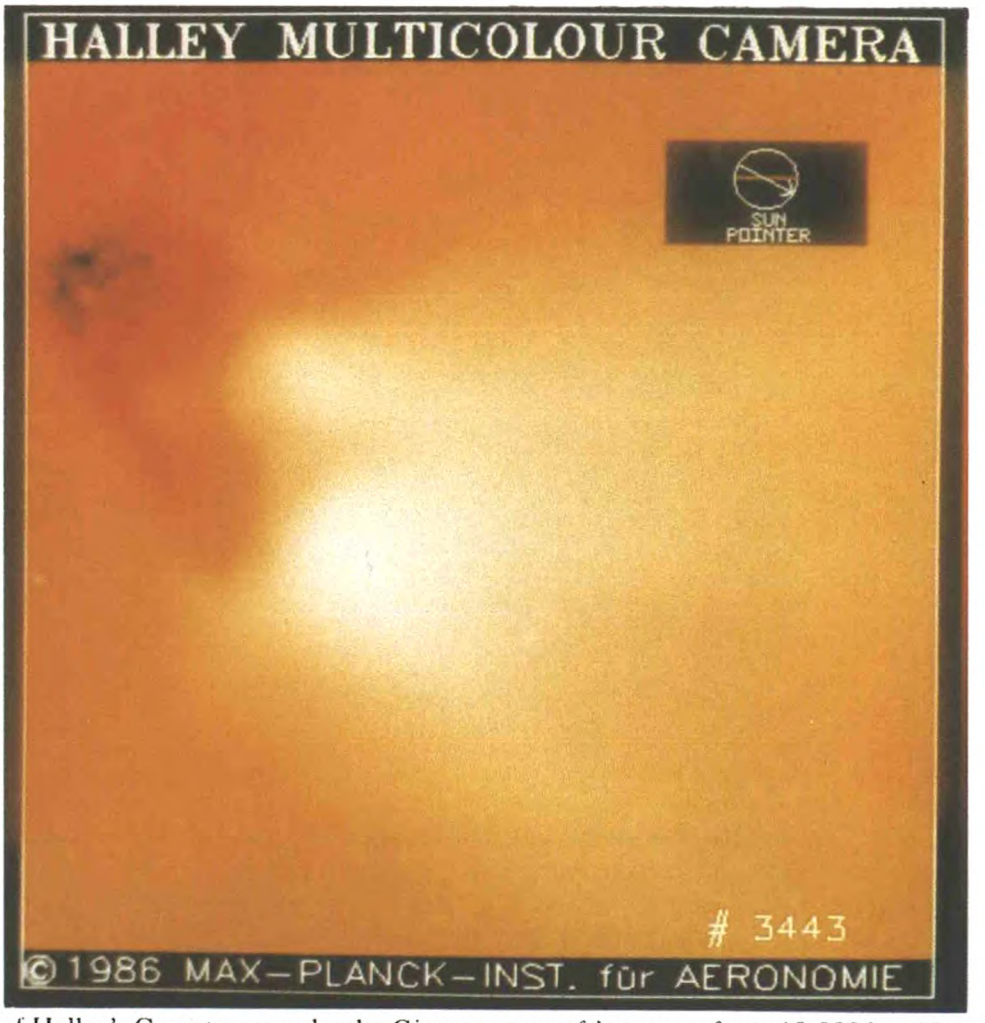


Photo by G. A. Prosser

Iceberg sighted from m.v. *Australian Venture*. (*See* page 117)



The core of Halley's Comet as seen by the Giotto spacecraft's camera from 18 000 km (*See* page 139)

Opposite page 129

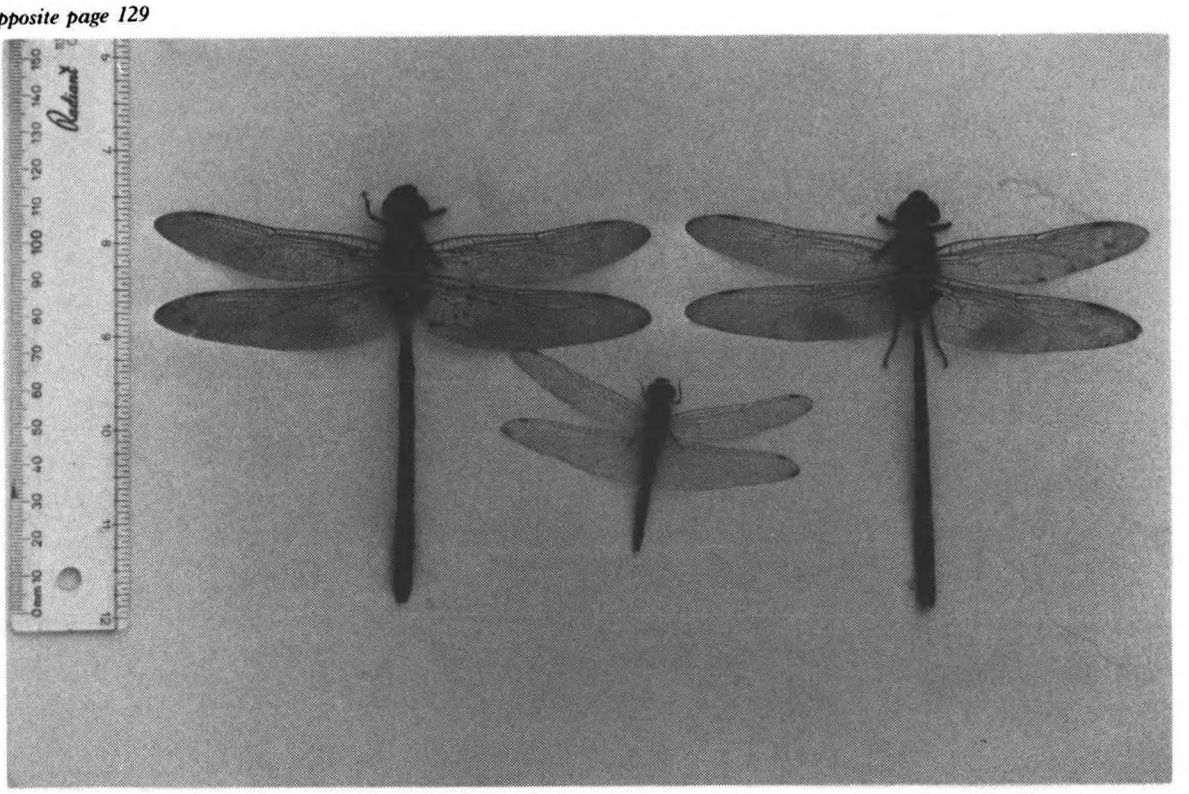


Photo by E. A. Parker

Dragonflies observed on m.v. *Pacific Peace*. (*See* page 127)

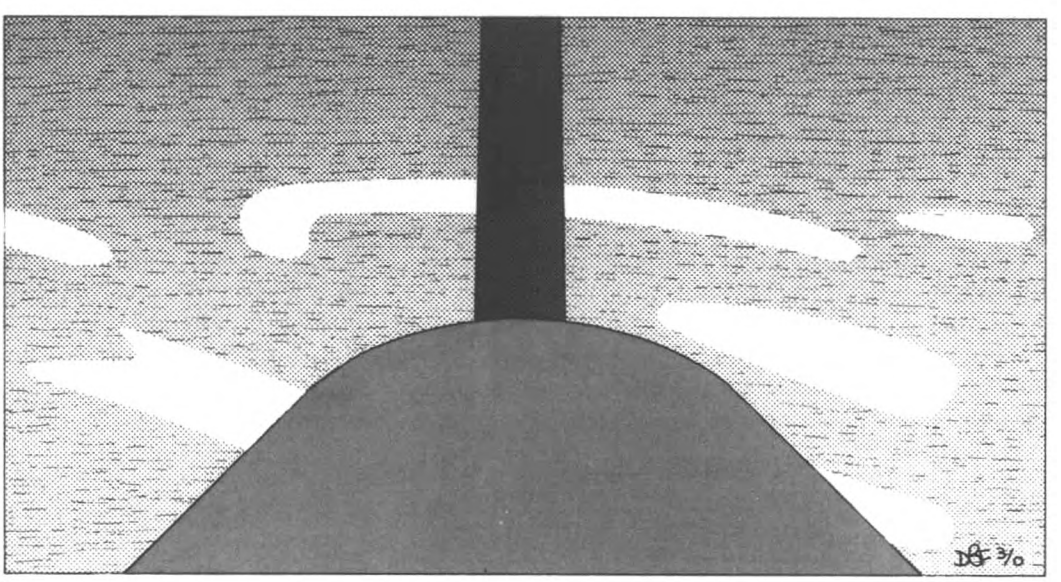
Photo by WIPO/S. Farkas

Geneva, 1979 — The executive heads of the United Nations and its Specialized Agencies at a meeting of the Administrative Committee on Co-ordination at the headquarters of the World Intellectual Property Organisation. Standing left to right: M. I. Sobhi (UPU), D. A. Davies (WMO), C. P. Srivastava (IMO), A. Bogsch (WIPO), A. M. Al-Sudeary (IFAD), W. Clark (IBRD), O. Long (GATT). Seated: J. de Larosière (IMF), A. M. M'Bow (Unesco), F. Blanchard (ILO), K. Waldheim (UN), E. Saouma (FAO), H. Mahler (WHO), Y. Lambert (ICAO). (*See* page 134)

m.v. *Caspian Universal*. Captain R. R. Cawdery. Sheerness to Tela. Observer: Mr D. B. Flood, 3rd Officer.

5 September 1985. At 2100 GMT, the fog through which the vessel had been steaming for the previous eighteen hours, lifted, leaving no loom or 'cat's whiskers' around the mast lights. A couple of stars were sighted, though the sea and sky were pitch black with no visible horizon, and the visibility was unknown.

At 2112, approximately 2·5 ship's lengths ahead, a light 'patch' was seen. At first it was not known if it was in the sea or the air, but as we moved closer, it was clearly apparent that it was in the sea. As we moved nearer, the patch was a distinct line in or on the water and was about 10 m wide by 30 m long. After the first one, we noticed many more of exactly the same colour, but of varying sizes. These ranged from about 10 m across and 20 m long, to 20 m wide and 200 m long. They were mainly in lines running in a north-south direction. There were some that curved into a hooked shape as shown in the sketch, but the edges of each patch were very distinct and not jagged or frayed in any way even when the ship passed through them.



There was no glowing or phosphorescent effect at any time from the patches, although there was extremely bright luminescence present in the bow wave before, during and after the patches were noticed. When an Aldis lamp was shone onto the patches directly below the bridge wings, nothing could be seen at all except the sea surface. The last patch was passed through at 2126, and at 2140, the fog came down as thick as it had been previously.

Both radars were running throughout on different ranges, and there were no echoes of any descriptions, not even clutter.

Weather conditions were: air temperature 18·5°C, wet bulb 18·0, sea 18·0, pressure 1028·7 mb. The wind was W'ly, force 2 and the sea was slight with no breaking waves and a low swell from the west.

Position of ship: 45° 30'N, 17° 00'W.

Note. Dr P. J. Herring, comments as follows:

'This report is of non-luminous paler patches which must therefore have been patches of some scattering material in the sea. It is possible that a bloom of small calcareous plants called Coccolithophores was encountered. These are occasionally visible as milky patches during the day, and would appear as pale patches at night. They are not luminous.'

METEORS

Equatorial Eastern Atlantic

m.v. *ACT 2*. Captain D. I. Moore. Rotterdam to Sydney. Observers: Mr M. P. Green, 3rd Officer and Mr T. M. H. Dawson, Cadet.

21 July 1985. During the 8–12 evening watch, a greater number of meteors than normal was observed. The majority of them were small 'shooting stars', but three were larger 'fireballs'.

The first one was sighted at 2010 GMT at an approximate altitude of 30° and passed along a near horizontal path from a bearing of 150° to 130°. It had the brilliance of a first magnitude star, having a short tail behind it, and appearing for approximately half to three-quarters of a second.

The second fireball appeared at 2315. This one was seen bearing approximately 100° and its path was from an altitude of 70° to one of 30°. It was much brighter than the first one and lit up the sky like a firework for about 1·5 seconds.

The third was seen one minute later. Its bearing was 140° and its path was vertical from an altitude of 50° to one of 30°. It was not as bright as the previous two, but had a long, thin tail behind it and appeared for about half a second.

Position of ship at 2010 GMT: 02° 35′S, 09° 45′W.

Note. Mr H. Miles, Director of the Artificial Satellite Section, British Astronomical Association, comments:

'During the latter part of July there are quite a few ill-defined meteor streams, resulting in the appearance of far more meteors and fireballs than is normally the case. Fireballs and meteors are produced in the same manner, i.e., burning up in the atmosphere, the former being caused by larger fragments of material. Meteors (with fireballs) fall into two main classes, "sporadic" and "stream". The latter, possibly debris from comets, orbit the sun in reasonably well-defined orbits and at such times when an orbit intersects that of the Earth round the sun, they enter the atmosphere and have tracks which seem to radiate from a fixed point in the sky. This is called the radiant. Activity produced from a particular stream varies from year to year. The July stream contains many bright meteors or fireballs.'

SATELLITE RE-ENTRY

Eastern North Pacific

m.v. *Eulima*. Captain R. Jeffery. Curaçao to Los Angeles. Observers: the Master, Mr W. Barlow, 2nd Officer, Mr J. W. N. Holmes, 3rd Officer, Mr M. Collis, Chief Engineer Officer, Mr B. Lilley, Seaman 1 and Mrs Jeffery.

3 August 1985. The Third Officer had just returned to the front of the bridge at 2040 LMT having put a position on the chart, when a cone of light was observed shining in the sky ahead of the vessel and at a distance of about 5 n. mile. It appeared as if it was shining through an area of smoke, as it was in perfect shape. The cone was about 150 m tall with the same length diameter, and had a bright point of light at its apex. There was no accompanying sound or any echo on the radar.

The Master was called to the bridge, by which time the cone had dispersed somewhat and had become more distant from the ship. The observers on the bridge wing were all looking forward when the man employed on lookout duties reported a similar phenomenon astern.

This one was higher than the first and was slowly descending at an angle of about 45°. A similar light was at the apex, but this cone was smaller and less bright despite being at a similar range.

We are sure that this has some logical explanation; on board, the opinion was that it may have been some form of re-entry, but this was thought dubious because of the slow rate of descent.

Position of ship: 24° 15′N, 112° 54′W.

Note. Mr H. Miles, comments:

'This is a very interesting report because of the sightings of two objects, one forward and one astern. This suggests the existence of two objects very close to each other when in orbit, or more likely, a single object breaking up into two smaller fragments early in its plunge into the atmosphere.

'Records show that a fragment from the launch of COSMOS 1665, listed as 85 57D, re-entered on 4 August at 0433 GMT, a time which is quite close to the time given in the report (3 August, 2040 Local Time). It is therefore thought that 85 57D broke up very early in its passage through the atmosphere, producing the objects observed. The reported slow movement does not eliminate a re-entry explanation as it could be a line of sight phenomenon. This line of sight possibility is supported by the reporting of the light in the centre of the area of smoke for the object seen forward of the ship.

'Although no precise information of the directions of the phenomenon are given, the general directions reported in relation to the heading of the ship do not conflict with the orbital inclination of the fragment prior to re-entry.'

RESCUE

Tasman Sea

m.v. *Fort Dufferin*. Captain B. G. Roberts. Newcastle to Fukuyama. Observers: the Master, Mr G. P. J. Young, 2nd Officer and ship's company.

6–7 August 1985. A low-pressure system over south-east Australia on the 6th caused the vessel to experience severe weather conditions with winds of force 8–9, gusting to force 11 at times, very rough seas and heavy swells from the north initially, but turning to the west. These swells were very short and steep, reaching 8 m at the height of the storm.

At 0600 GMT on the 7th, the conditions were believed to be moderating, as indicated by weather reports, and the depression was reported to be moving in a SE'ly, direction. However, at 0900, the wind was W'ly, force 9, as was the swell which was again reaching a height of 8 m. The vessel was in position 27° 05′S, 154° 40′E at 0923, at which time the wind had increased to W'ly, force 10–11 and spray was being shipped forward then driven across the vessel below bridge level, thus not seriously impairing horizontal visibility.

It was at this time that the vessel received a distress call via Brisbane Radio stating that a 10-m sloop named *Horizon* had been dismasted and disabled whilst competing in an ocean race from Auckland to Maloolaba (Queensland). The yacht's position was given as the same as our own, and Brisbane Radio was advised that we were proceeding to the aid of the yacht and our course was altered from 360° to 278°.

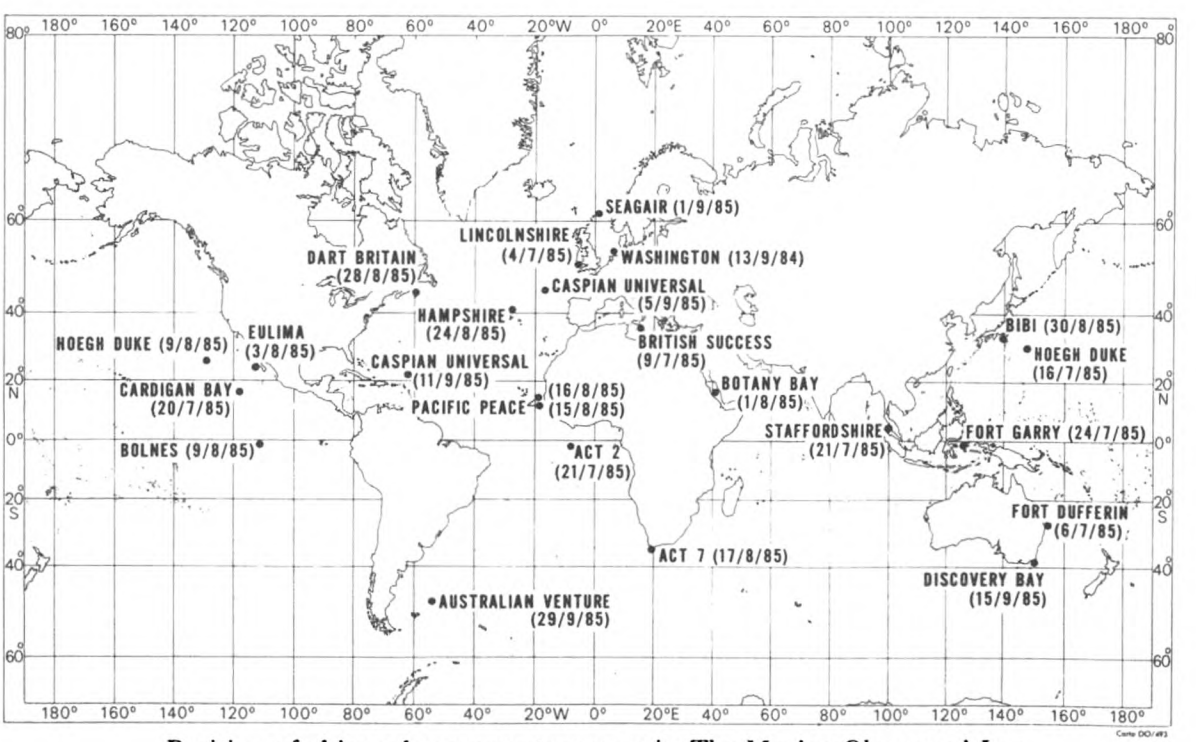
VHF contact was established with the yacht and also with a Hercules aircraft of the R.A.A.F. which was engaged in the search. The aircraft made a visual sighting of *Horizon* and dropped green marker flares, thus enabling a radar fix of the aircraft to be made as it passed over the yacht. It was now known that the *Horizon* was 14 n. mile WSW of the vessel, but at no time during the operation was it visible on the radar screen.

On approaching her, the Master decided that owing to the W'ly direction of both wind and swell, a manoeuver passing north of *Horizon*, then altering course to port around her and steadying the vessel on a southerly heading to the west of her would be the most favourable and would create a good lee on our port side. The manoeuver was executed and lines were sent away to the yacht by rocket. At this stage of the operation, the sea on our lee side was reduced to about 3 m, however, on the starboard side, it was breaking over the full length of the deck with spray being driven across the deck, so making working conditions very difficult for the deck party.

This vessel afforded the *Horizon* such a good lee that she was able to manoeuver herself alongside under her own power. The six persons on board climbed to safety up scramble nets rigged along the ship's side, but the last of the survivors to leave *Horizon* fouled a foot in a net, and, being too exhausted to release himself, was hauled aboard wrapped in it. Once all six persons were on board, the distress was cancelled and the yacht cut adrift. It was estimated that the *Horizon* was making approximately two nautical miles leeway per hour.

The survivors were to be taken to Brisbane Pilot Grounds for disembarkation. En route, the weather began to moderate, and at 1800, conditions were as follows: dry bulb 16·0°C, pressure 1010·8 mb, wind SW'ly, force 5, 2 oktas cloud and moderate SW'ly seas and swell. The vessel resumed her normal passage after landing *Horizon's* crew at 1905.

Position of ship at 0600 GMT on the 7th: 27° 30'S, 154° 36'E.



Position of ships whose reports appear in *The Marine Observers' Log*

551·5: 06(a): 34

The Fortieth Anniversary of the United Nations*

By D. A. Davies

The year 1985 marks the fortieth anniversary of the United Nations. It is an occasion which is being celebrated throughout the world — and in many different ways. It is evidently an occasion of special significance to those international organizations which are privileged to function as Specialized Agencies of the United Nations — and whose activities are thus immediately connected with those of the United Nations itself.

At such a time, it is therefore natural for those concerned with WMO affairs to look back over the past, and to review the nature and scope of WMO's relationship with this great human endeavour. It is equally natural to look ahead to the years to come and reflect on the future of this relationship.

In undertaking this dual process, each of us will inevitably be guided by personal knowledge and experience of the affairs of both the United Nations and WMO — and of the relationship between the two. As one who has been directly involved in such affairs from the time WMO came into existence as a Specialized Agency of the United Nations — a period which comprises over 30 of the 40 years we now celebrate — I readily accepted the invitation of the WMO Secretary-General to convey my thoughts on this subject in the *WMO Bulletin* as part of WMO's participation in the anniversary celebration.

Looking back into the past, one sees at once that international co-operation in meteorology actually started long before the United Nations appeared on the international scene, and due credit must certainly be given to those who, in the early pre-UN days, laid a solid foundation on which the future structure of international meteorology could be built, and who, perhaps even more importantly, developed a spirit of full and friendly international co-operation in our science. It is, however, no less appropriate that we should recognize at this time the enormous progress which the science and practice of meteorology has achieved since WMO became an intergovernmental organization and a Specialized Agency of the United Nations. In so doing, it is important that we should also recognize the great benefits which WMO has reaped from its association with the United Nations in making possible this remarkable progress — and it is of course to these benefits that we turn our attention in celebrating its fortieth anniversary.

When WMO became a Specialized Agency of the United Nations in 1951, it was becoming apparent that meteorology would need to play an increasingly important part in many fields of human activity, and especially those related to economic and social development. Indeed the records of the First Congress of WMO in 1951 show clearly that it was considerations of this sort which led the countries of the world to establish a specialized agency dealing with meteorology. In other words, our science had by that time acquired a recognition and status which made it necessary for the world to establish an intergovernmental body within the United Nations system, a body which would take the place of the non-governmental IMO which had served our science so well for nearly a century.

---

* Reproduced from *WMO Bulletin*, October 1985, by kind permission of the Editor and of Sir Arthur Davies, KBE, who served as Secretary-General of WMO from 1955 to 1979, and on his retirement was given the title Secretary-Emeritus by Eighth Congress.

It was indeed fortunate that meteorology acquired such recognition and status, since at that time technological advances were being achieved which, if utilized with understanding and in a spirit of international co-operation, would enable the science of meteorology to make remarkable progress and so face up to the many new responsibilities which were soon to be placed upon it. As all who are familiar with WMO affairs will be well aware, the opportunity was, in fact, well taken, thanks in large measure to WMO's association with the United Nations. Let us therefore look a little more closely into the ways in which this association produced such positive results.

In the first place, developments in such fields as telecommunications and radar and the beginnings of the tremendous impact of scientific progress of the electronic computer, may be mentioned. These were, however, soon followed by the advent of outer space technology which opened up unprecedented opportunities for meteorology. It was therefore most fortunate that the United Nations was then available to provide an approximate international setting in which the countries of the world could examine these opportunities and take the necessary supporting action. Thanks to two resolutions of the General Assembly of the United Nations, two of WMO's major global programmes became possible, namely the World Weather Watch and the Global Atmospheric Research Programme.

The story of how these two unprecedented WMO programmes were planned and implemented will surely have its place in the history of meteorology. In the context of the anniversary of the United Nations, suffice it to stress that it was because WMO was part of the United Nations system that these highly specialized and costly technologies were put to good use so promptly and efficiently.

Closely related to these WMO programmes is another area in which the United Nations has been of great assistance to WMO. Such programmes can only be fully effective if the national Meteorological Services of all countries are themselves able to contribute to implementing the programmes (a particularly essential requirement in a geophysical science such as meteorology), and if they are also able to utilize to the full the resulting benefits. Having regard to the advanced technologies involved, it is hardly surprising that to do this many countries found that meteorological assistance is one form or another was necessary, and it is here that the United Nations has played another important role. This is because WMO, as a Specialized Agency, has been able to participate in United Nations technical co-operation activities. In this way, much of the required meteorological assistance has been forthcoming. WMO's participation in the United Nations Development Programme is, of course particularly relevant in this connection; within the framework of UNDP, WMO has done much to ensure that advances in meteorological knowledge and skills have led to real practical benefits at the national level.

There is yet another important factor to bear in mind when celebrating the fortieth anniversary of the United Nations. It relates to the activities of the Aministrative Committee on Co-ordination — a committee on which serve the executive heads of all the Specialized Agencies under the chairmanship of the Secretary-General of the United Nations. The WMO Secretary-General is thus *ex officio* a member of the ACC. (*See* photograph opposite page 129).

The purpose of the ACC is to facilitate co-ordination in both administrative matters and in the planning and execution of the respective programmes of the United Nations and its Agencies. It thus provides a valuable forum for discussion of the wide range of activities within the entire UN system. It is a particularly useful body from WMO's point of view because the all-pervading relevance of weather and climate to almost every form of human activity means that there is a direct relationship between WMO's sphere and those of many

other organizations. Moreover, the ACC not only provides a valuable co-ordination mechanism, but also a convenient and effective means for each of its members to keep in touch with developments of all kinds on a global scale. A no less useful function of the ACC is that it provides a direct personal contact between the heads of the Agencies and the Secretary-General of the United Nations. By personal discussions and explanations at this level, difficulties may frequently be resolved, and a broader understanding acquired of problems of mutual concern.

There is, of course, much more that could be said on the subject of WMO's relationship with the United Nations, but it will be evident from the foregoing remarks that WMO has good reason to celebrate the fortieth anniversary of the United Nations. We have seen that the decision to establish WMO as a Specialized Agency gave an appropriate recognition and status to our science in world affairs, and hence an appropriate setting for the conduct of unprecedented global meteorological programmes involving satellites and other advanced and costly technology, such programmes serving operational and research purposes. In addition, the United Nations has greatly assisted WMO in bringing support where necessary to Member countries, thereby enabling them to participate in these programmes and also to reap the benefits resulting from them. Yet again, as a member of the United Nations family, WMO has been able to acquire an overall knowledge of the activities of the United Nations and the other Specialized Agencies, especially in the fields of economic and social development, and to co-ordinate its activities with them for the common good. In other words, the support and interest of the United Nations has enabled WMO to carry out its important global responsibilities in a more efficient and effective manner than would otherwise have been possible.

As already mentioned, however, we should also look into the future as well as the past. This is clearly a more difficult task since precise predictions of future developments are not possible in our complex modern world. We may, however, with every justification, at least express the confident hope that the happy relationship between the United Nations and WMO will long endure, and that WMO will thereby continue to be assisted by the United Nations in rendering to Member countries the best services that the advancing science of meteorology will continue to make possible in the years to come.

In this article for the WMO Bulletin I have naturally focused attention on the activities of the United Nations in the context of their relationship to those of WMO. Lest it be thought, however, that we are mindful of the vast scale and scope of activities of the United Nations, as a whole, and their relevance to world affairs in general, let me offer some brief concluding remarks on the overall significance of this fortieth anniversary — remarks offered on a somewhat more personal note.

Some ten years ago, I was asked to make a statement on the occasion of the planting of a tree in the grounds of the Palais des Nations in Geneva in memory of U Thant. He had served as Secretary-General of the United Nations from 1961 to 1971. I had been asked to speak at the ceremony on behalf of all the Specialized Agencies. After rccounting his great services to the United Nations cause and saying that there could be no better memorial to U Thant than a tree, I went on to say:

> . . . in many ways (a tree) symbolizes a man. His feet were firmly placed in the good earth of reality like the roots of a tree; but his wishes and aspirations, like the branches of a tree, extended ever upwards to the sky wherein the ultimate United Nations goal of peace and social justice is to be found. Let us all hope that, high as this goal may be, it will not be found to be beyond man's grasp; and let us strive with all our power to attain it.

I can think of no better way of concluding this article than by drawing a similar analogy. The United Nations system as a whole, including as it does

WMO and the other Specialized Agencies, may also be compared to a tree, with its roots in the good earth of reality, and its hopes and aspirations rising upwards, like the branches of a tree towards the same goal. I need hardly add that I am completely confident that WMO will play its full part in seeking the attainment of that goal in the years to come, and will thereby render still greater benefits to the Member countries it serves.

Footnote: The World Meteorological Organization awarded its prestigious International Meteorological Prize to Sir Arthur Davies on 20 January 1986. The presentation was made in the Lecture Theatre of the Royal Society by the President of WMO, Dr R. L. Kintanar of the Philippines. The U.K. Meteorological Office was represented, and among the other guests attending were senior diplomats and senior representatives of international organizations, learned societies and the universities, as well as Sir Arthur's family and friends.

598·2 : 656·6

Treatment of Bird Casualties at Sea

By Captain A. S. Young
(Royal Naval Birdwatching Society)

We regularly receive reports of both land and seabirds landing on board ship. Some of these birds are simply using the ships as a convenience; for instance, boobies may use a ship as a staging post or as a platform from which to fish, even chasing flying fish off the bow. One can frequently see Raptores such as hawks or owls, on the departure of grain ships, taking advantage of the usual numbers of seed-eating animals and small birds gleaning the spillage. Sometimes egrets and herons alight merely to take a rest or hitch an easy passage on board. Such happenings are usually of considerable interest to the bird-watcher and photographer.

However, numbers of birds may not be so fortunate as to be on board as a matter of choice; some, like the inquisitive tropic-birds, come foul of stays or aerials and although uninjured may not be able to get themselves airborne again without assistance. Others may be storm wrecks seeking their last chance of survival, such as petrels, storm petrels, shearwaters and terns or similar small seabirds. Even landbirds may be driven far off their migratory course by stress of weather.

It is very sad to see some pathetically bedraggled storm petrel, recently rescued from the scuppers, exhausted, dazed and probably very frightened, being presented to the Steward or bridge watch for succour. I understand the dilemma of the recipient of this fragile bundle of wet feathers. How best to assist this wee fellow seafarer in need?

Here I shall endeavour to set down a few points which I trust will help both the benefactor and the casualty. The birds under these conditions must inevitably be in a state of shock and should therefore be handled as little and as gently as possible. Quiet and warmth are the first factors to consider. A cardboard box or carton of suitable size giving reasonable room for movement is ideal with an old towel or cloth in the bottom for comfort, into which the casualty is gently placed. The box should be covered, such as with a piece of dark bunting, to keep the occupant in a quiet and darkened environment, but allowing good ventilation. The box should be placed in a warm, not stifling hot, area, and away from disturbance for the patient to rest, dry out and, hopefully, recover.

It is not advisable to give food immediately, but *fresh* water in a suitable container, which cannot be spilled or bathed in, should be provided. A little sugar or honey mixed into this would be acceptable and probably help recovery.

The patient should be disturbed as little as possible for the first few hours.

This treatment may be all that is required: under no circumstances 'kill with kindness'. If the bird appears to be 'scrattin' about', trying to use its wings, looks lively in response to intrusion or attempts to preen (straighten its feathers to replace the necessary oils), it is a good sign that all is well and if conditions are favourable weather-wise, release should be considered, as they are much better off in their natural environment. The latter applies more strictly to seabirds than to the land varieties.

If it is felt necessary to keep the bird for a longer period, due to continuing storm conditions, or distance from land in the case of landbirds, feeding must be considered and this will depend on the type of bird in question.

Seabirds of course prefer 'fishy' food, and so I shall deal with this aspect next. The size of the bird really dictates how the food should be presented, and this may call for a little ingenuity, a quality which the average seafarer is well endowed with. It is rather pointless offering a whole kipper or half a cod on a saloon plate (one might as well go the whole hog and provide knife, fork and knapkin as well, for all it will mean to the bird); I think it is correct to say that birds have little or no sense of smell, and they will not realise that the object placed before them is life-giving food.

The first item that comes readily to mind is the sardine — in oil rather than tomato sauce please — which can be mashed and thinned down for small storm petrels or separated out to look like fish for terns and shearwaters. Morsels of fresh fish, squid and non-fatty meat cut into small pieces could also be offered. Even then, seabirds may not recognise the food as such and it may be necessary to resort to forced feeding at first, using gentle but firm persuasion.

An eye-dropper has been used to great effect with small birds. A raid on the medical locker may produce a form of instrument that can be adapted, given the permission of the M.O. of course. For larger birds, small pieces of food may be introduced into the gullet with the fingers, or other surgical implement, until the recipient gets the message, but do not try to overdo it. The provision of fresh water is most important.

Landbirds are another matter although initial treatment is much the same as for seabirds, viz., rest, warmth and a little water. Many landbirds are specialised feeders and do not take easily to an alien diet, though anything is worth trying to find something to suit the palate. Size of bird and type of bill may give a guide to feeding habits: the hooked bill of the raptor for tearing flesh, long thin bill for prodding mud for worms; a long and thick bill for prising out grubs and dealing with larger insects, stubby and heavy indicating a seed-eater or short and thin for small insect-eaters, to name but a few.

Seed in the form of rice, oatmeal or other pulses, cooked or uncooked, bread and biscuit crumbs, non-fat meat, chopped or minced, cheese and hard boiled eggs, both finely minced, as well as fruit, both fresh or dried, are some of the foods that may be tried. If all else fails, a syrupy solution administered by dropper may help replace lost energy and save the day. Some of the Field Guides go into the subject in rather more depth.

Oiled, and especially injured, birds are naturally much more difficult to attend to without specialized knowledge: I would venture that, dependent upon the degree of oiling or injury and the ability of those concerned, it may be more humane to quickly terminate the suffering; always a sad occasion, but often for the best. Light oiling can be treated fairly easily after the patient has been allowed to rest, during which time it should be prevented from trying to preen or clean itself and thus to swallow the wretched stuff. A sock or stocking with the toe cut off and pulled over the bird's head to cover the body is ideal. The affected parts should be gently washed with a weak solution of washing-up liquid in luke-warm water and repeated as necessary until clean. The bird should then be left to rest, dry out and start preening again to straighten and restore the natural oils to the feathers. Never release a bird before it has preened for if it alights on the water, it will sink due to this lack of waterproofing oil on its feathers.

Whilst far from comprehensive, I hope the above will be of value to those who become involved with these unfortunate 'fellow mortals' as Robbie Burns would put it. It is appropriate to correct one rather common misconception with regard to some seabirds found on board. I am sometimes advised that the subjects would only 'shuffle about' as though exhausted or injured, although neither is usually the case. The more pelagic (spending most of their lives away from land) seabirds only come ashore briefly to breed, hence their legs have

virtually no exercise at walking and therefore lack the strength to support their body weight and they appear awkward and distressed. Usually they need only a helping hand to become airborne and return to their natural environment.

Here's hoping the necessity seldom arises, but if it does, good luck and success to all who have the opportunity to minister to our feathered friends.

Halley's Comet: Photographs by the Giotto spacecraft's camera

On 14 March 1986, the Giotto spacecraft, controlled by ESA scientists based at Darmstadt, had a rendezvous with Halley's Comet some 90 million miles away from Earth. Among the many hundreds of images of the comet transmitted from the Halley Multicolour Camera (HMC), was the one which now appears opposite page 128. It was taken on 14 March at 0006 GMT from a distance of 18 000 kilometres. The sun illuminates the comet from the lower right corner of the scene, as indicated by the arrow in the inset. In the upper left corner, one sees a roughly circular, but very dark area having a diameter of 4 kilometres. That area is actually part of a larger, elliptical region of 15 kilometres in the longest dimension and at least 8 kilometres in the shortest, which appears to be the solid nucleus. It is somewhat larger than expected.

From the right-hand edge of that cigar-shaped region emanate two major, bright jets of dust, the lower jet being shorter and wider. These two jets extend for at least 15 kilometres towards the sun and represent the major apparent activity of the nucleus emanating from specific areas on the sunlit side.

The HMC was turned on 4 hours 19 minutes before closest approach, and coma images of the comet were obtained at 3 hours 8 minutes to closest approach, the distance at this time being 767 000 kilometres. Approximately 2000 images were obtained. Nucleus mode occurred at 5 minutes before closest approach, when the range was 20 000 kilometres, and 69 nucleus images in 3 colours simultaneously were obtained until the camera and spacecraft were hit by large particles which caused some damage, at about 1100 to 1200 kilometres from the comet.

Note. The comet was rather hazy and not easy to spot with the naked eye when viewable from the Northern Hemisphere during the latter part of 1985; it was very diffuse and looked like a 'squashed star' to the observers on board m.v. *Encounter Bay* who watched its movement between 6 December 1985 and 3 January 1986. It was also seen by those on board m.v. *Cable Venture* when in the Gulf of Aden on 12 December 1985. These are the only records received at the time of going to press.

AURORA NOTES JULY TO SEPTEMBER 1985

By R. J. Livesey

(Director of the Aurora Section British Astronomical Association)

In Table 1 are listed the observations of auroral activity which we have received from mariners to date for the period under review. In Table 2 we summarise the auroral activity as reported by land and marine observers located principally in north-west Europe, the North Atlantic Ocean and North America.

Table 1—Marine Aurora Observations July to September 1985

Date	Ship	Geographic Position	Time (GMT)	Forms in Sequence
10 Jul.	*Avondyke*	45° 17′N, 03° 01′W	2200–2225	G
19	*Starella*	56° 57′N, 19° 52′W	0145–0245	N
12 Aug.	*Ravenscraig*	58° 12′N, 08° 02′W	2300–2325	G, RA, G, RA, m_2RG
13	*Cumulus*	56° 50′N, 18° 57′W	0240–0315	amSG, p_1R_3RA
14/15	*Cumulus*	56° 59′N, 20° 37′W	2300–0100	qfHG
19	*Cumulus*	56° 58′N, 20° 10′W	0325–0345	amR_1RA, qfHG
19/20	*Cumulus*	57° 05′N, 20° 19′W	2300–0015	qfHG, p_1fH, qfH
23	*Cumulus*	57° 02′N, 17° 50′W	0315–0340	qfHV, p_3fHV, qfHV
23/24	*Cumulus*	57° 36′N, 14° 06′W	2300–0215	qHG
24	*Starella*	57° 00′N, 20° 00′W	2245	N
7 Sept.	*Starella*	57° 00′N, 20° 00′W	2230	N
14	*Starella*	57° 00′N, 20° 00′W	2245	N
16	*Manchester Challenge*	53° 23′N, 58° 43′W	0315–0545	RA + RR
19	*Starella*	57° 00′N, 20° 00′W	2245	N, HB, N
21	*Starella*	57° 00′N, 20° 00′W	0045–0445	qN
22/23	*Ringnes*	63° 00′N, 06° 25′E	2300–0015	qHA, qRA
25	*Cumulus*	57° 00′N, 20° 00′W	0005–0035	qR, RP

KEY: a = active, f = fragmentary, m = multiple, m_2 = 2 forms, p_1 = flaming upwards, p_3 = horizontal streaming, q = quiet, A = arc, B = band, G = glow, H = homogeneous, N = aurora of specified form, P = patch, R = rayed, S = striated, RR = ray structure, R_1 = short rays, R_3 = long rays.

The auroral storm on the night of 12/13 August was well seen from Canada to Norway and is thought to have been caused by emission of particles from a coronal hole on the sun. Although not strongly evident in September, it would appear that this activity has repeated itself with every rotation of the sun up until at least the turn of the year, complete with radio and magnetic events.

Sunspot minimum is being predicted to occur in 1986 and very few spots are currently being observed. Nevertheless, auroral and magnetic activity continues, and observers should be not lulled into thinking that no aurorae will occur; they are still doing so, as will be apparent when the report for the last quarter of 1985 is published. As noted above, the auroral holes remain active, but, in addition, some of the aurorae are derived from disappearing filaments in the solar atmosphere. The rearrangement of the magnetic fields around the area of the filament when it disappears generates energy which acts like a catapult to throw a cloud of particles out into space. If the cloud encounters the Earth, then we may observe an aurora.

Table 2—Auroral Storms Reported July to September 1985 (excluding doubtful and high-latitude observations).

Date (Night)	Location and Number of Observers	Geomagnetic Latitude Lowest	Highest	at Storm Peak	Maximum Storm Activity Code*
3/4 Jul.	Alberta (1)	64	—	—	2
5/6	Alberta (1)	64	—	—	2
13/14	Winnipeg (1)	59	—	—	5
20/21	Winnipeg (1)	59	—	—	5
24/25	Alberta (1)	64	—	—	7
26/27	Winnipeg (1)	59	—	—	4
30/31	Alberta (1)	64	—	—	5
31 Jul./1 Aug.	Winnipeg (1)	59	—	—	5
12/13	St Lawrence, 'Lima', Scotland, Norway (12)	56	62	56	7
14/15	'Lima' (1)	63	—	—	1
18/19	Alberta, 'Lima' (2)	62	64	64	5
19/20	Alberta, 'Lima' (2)	62	64	64	5
22/23	Alberta, 'Lima' (2)	64	64	64	5
24/25	Canada 'Lima' (4)	59	63	59	5
26/27	Norway (1)	60	—	—	4
31 Aug./1 Sept.	Wick (1)	61	—	—	5
6/7 Sept.	Alberta, Winnipeg (2)	59	64	59	5
9/10	Norway (1)	60	—	—	4
11/12	Norway (1)	60	—	—	2
14/15	'Lima', New Zealand (2)	63	—	—	1
15/16	Norway (2)	60	61	60	4
16/17	Norway (1)	60	—	—	2
17/18	Wick (1)	61	—	—	4
19/20	Scotland, Wick (4)	60	63	60	2
22/23	North Sea (1)	64	—	—	4
24/25	'Lima' (1)	63	—	—	4

*Storm Activity Code: 1 = Glow, patch or surface, 2 = Homogeneous arc, 3 = Rayed arc, 4 = Ray bundles, 5 = Active, pulsating or flaming storm, 6 = Coronal structures, 7 = All-sky storm.

While examining aurora observations during the process of filing, a most interesting point came to light. It was noticed that some observers have drawn rays rising from arcs low on the horizon as if they were radiating from a point below the horizon (Figure 1). A typical example was a report from the Ocean Weather Ship *Starella* on 3/4 October 1984. On the other hand, other observers have drawn the rays as if they were radiating from a point in the sky similar to that of a coronal structure (Figure 3). A typical example again came from the *Starella* on the night of 15/16 November 1984. The writer examined some photographs from the Ellsworth all-sky auroral camera in Antarctica and found the rays to converge in the sky (Figure 4). The question arose as to whether or not observers were drawing what they saw, or what they believed they ought to see, a common danger in scientific observing. Were some observers drawing rays at right-angles to the arc because they thought the rays should be that way? (Figure 1.) The International Geophysical Year instructions to observers show rays perpendicular to the horizon with no hint of convergence above or below it (Figure 2). One has only to remember how many well known observers in the

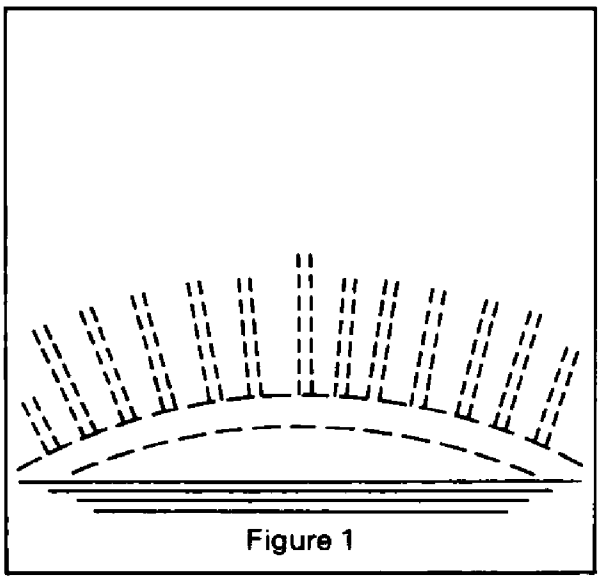


Figure 1

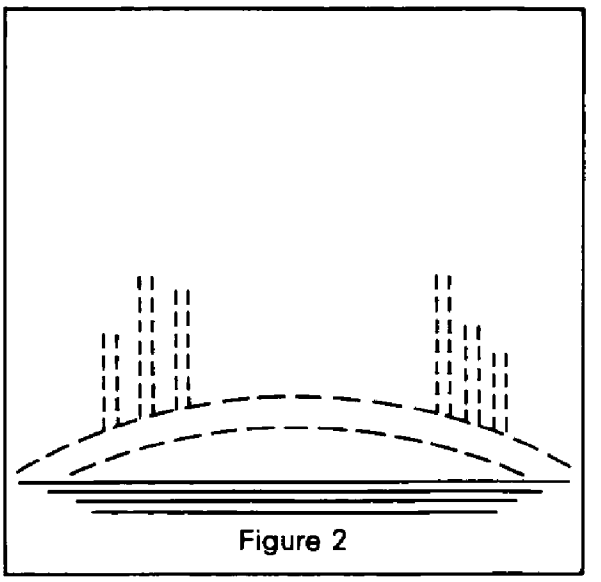


Figure 2

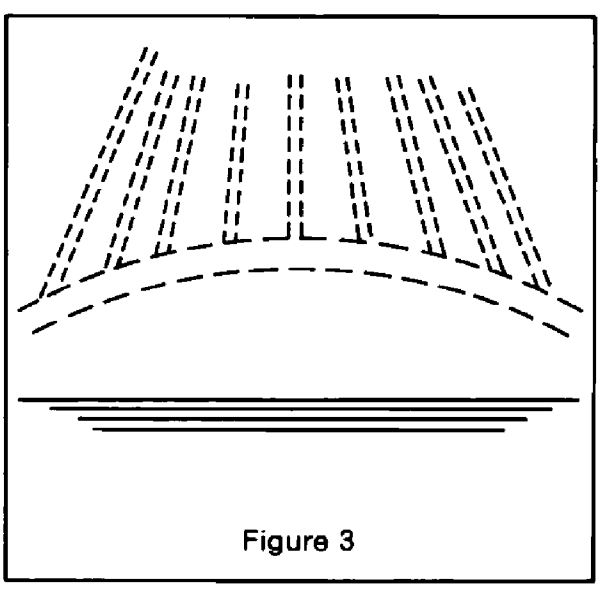


Figure 3

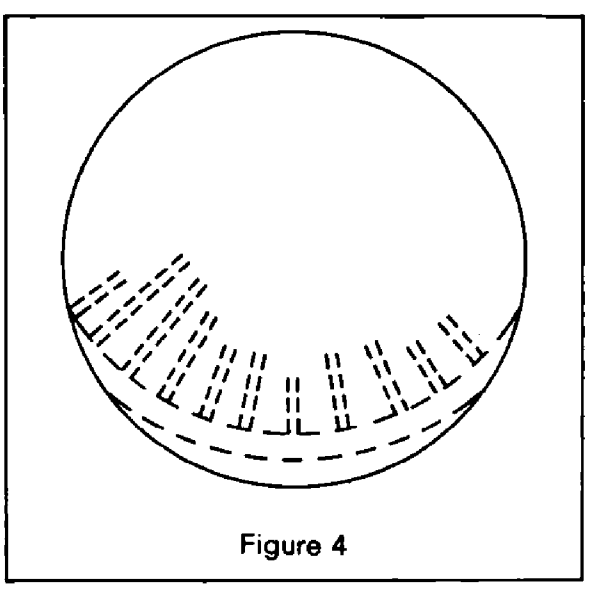


Figure 4

Figures 1–4. The orientation of rays appearing in a rayed arc auroral structure.

astronomical world used to plot the presence of a network of canals on the planet Mars, none of which exist; an example which should be a timely reminder to observers not to be lulled into letting imagination take precedence over eyesight.

This matter was analysed independently and in different ways by Dr Michael Gadsden of Aberdeen University and by the writer. We came to the joint conclusion that it is possible for a rayed arc to take the appearance of Figure 1, 2 or 3. The geometry governing the perspective view depends upon the distance of the arc from the observer, the orientation of the arc with respect to magnetic latitude, the magnetic dip at the location of the arc, and, to some extent, the observer's latitude. Navigators with an eye for geometry might like to have a go at trying to analyse the problem for themselves, making the assumption that the base of an arc is at an altitude of some 105 km above the curved surface of the Earth, and lies parallel with magnetic lines of latitude. Observers are recommended to be very careful about trying to draw the orientation and convergence, if present, of any rayed structure, and in the case of rayed arcs in particular, to ensure that the altitude between the horizon and the base of the arc is carefully measured. Given sufficient observations, it should be possible to analyse this problem further.

It is of interest to note that the report sent in by the *Manchester Challenge* for the night of 16 September 1985, clearly shows a series of rays emanating from the horizon and passing up through an arc with a base some 25 degrees above the horizon, the rays spreading out like the spokes of a wheel from a hub below the horizon, just as in Figure 1.

Just as it is possible for an observer at night in the dark shadow of the Earth, to see an artificial earth satellite which is in direct sunlight outside the shadow, so it is possible to see auroral rays which themselves are in sunlight, although they would have been invisible had they been in daylight conditions. During his epic pioneering photographic investigations into auroral heights, Professor Karl Størmer of Norway found that in Arctic regions, rays and draperies in the dark atmosphere seldom attained heights greater than 250–300 km. From measurements over southern Norway he discovered high rays and draperies which could rise to a height of up to 1000 km in the sunlit atmosphere. It was also noted that if a ray extended from the dark to the sunlit atmosphere, there was a dark segment at the altitude of the edge of the shadow zone dividing the ray into two sections (Figure 5). The heights of the lower borders of arc in the sunlit atmosphere were found to be somewhat higher in altitude than those in the shadow. Further, Størmer detected high auroral patches at an altitude of up to 600 km in the dark atmosphere during great magnetic storms.

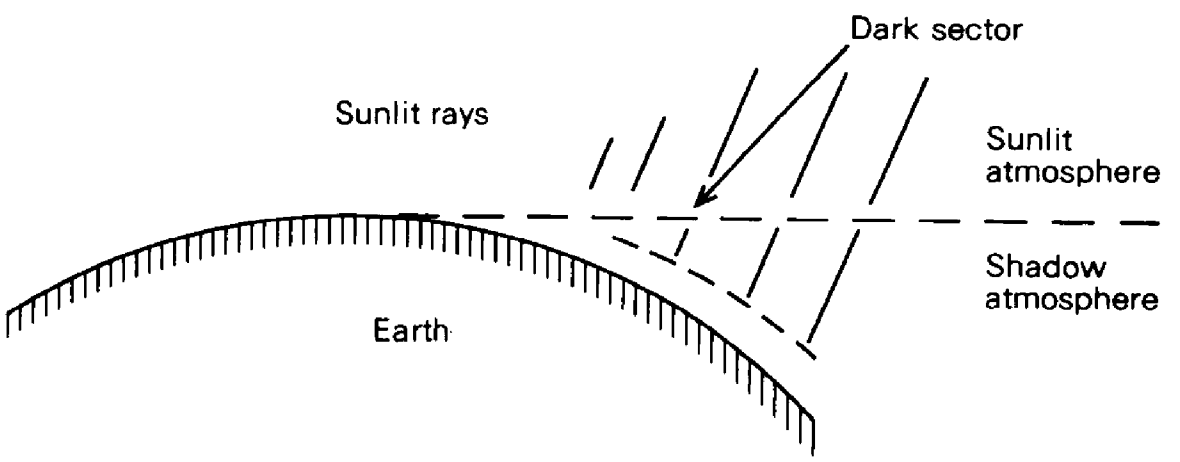


Figure 5

Figure 5. Sunlit auroral rays (after Størmer)

Størmer's sunlit aurorae, although faint, may well be seen at some distance and if these are lying parallel with their local magnetic field lines, could appear to have a different orientation than rays closer to the observer. Gadsden and Loughnan have reported the existence of long, red individual rays not in alignment with the general structure of other rays present, the colour suggesting that high altitudes were involved, but these rays are rare.

To sum up, auroral structures can be expected to do the unexpected and not appear in accordance with the conventional forms. Observers are therefore encouraged to be careful in trying to draw the correct orientations of auroral structures and to keep an eye open for anything that might be unusual. However trivial you may think it appears, we shall always be glad to have your notes and sketches. No observer can tell what value his observation may be, even to the investigators many years into the future. Good sailing and clear skies.

LETTERS TO THE EDITOR

From Mr A. M. Leech, Second Officer, m.v. *Liverpool Bay*, Overseas Containers Ltd.

'Difficulties in recording sea surface water temperatures. Recording of the sea-water temperature has become the chore of the 'met obs'. With bridge wing heights of between 76 and 94 feet and speeds of 20 knots or more, the knack of getting the rubber bucket into the water has become an acquired art. The bucket is instantly whisked astern and then the line must be carefully handled. As the bucket gains altitude on being hauled in, bouncing off the accommodation and snagging fittings and other obstructions, we wonder if there will be sufficient left in the bucket to wet the thermometer bulb? Sending the lookout down to the main deck (a mere 30 feet above sea level) is usually inconvenient and at night impractical.

'Problems in obtaining a sea-water temperature from the engine room are compounded with the current trend towards U.M.S. (Unmanned Machinery Space). Duty Engineers' work loads do not allow for the ever-changing ship's time of the synoptic hour, due to nightly advancing or retarding of clocks. Modern ships, whose bridge outputs from the engine room monitors have not been isolated from prying digits, can acquire a sea-water temperature directly without fuss. This can be calibrated with a regular bucket temperature taken from the main deck for comparison.

'In conclusion, I would like to suggest that more consideration is given to supplying ships with remote sea-water temperature sensing equipment. For more accurate results with minimum frustration I am sure the expense would be justified.'

Distant Reading Sensors supplied by the Met. Office Marine Division are fitted to new buildings in the United Kingdom whenever agreement can be reached with the shipowner for observations to be undertaken. Fitting of this equipment to existing ships is naturally more expensive and opportunities to do so occur less often: however, Mr Leech has highlighted the difficulties in obtaining sea temperatures on high-bridged fast ships most pertinently, and we hope to take more action to alleviate the situation. — Editor.

The following verse was gratefully received in a meteorological logboook from the Principal Observing Officer of the m.v. *Geestport*, dated May 1985, on passage from the Windward Islands to Barry.

Few clouds, no wind, calm sea, low swell,
All in all quite remarkable;
Additional reports it possibly rates
But space all filled by observant mates.

It's never too dark for an additional remark.

Extra remarks by Met. Office request,
So Tony has done his very best;
Scanned the sea for beasts extraordinary
And the skies for phenoms less ordinary;
Has come up trumps with these fine obs —
Must be after some weatherman's jobs!

Its always swell to hear from mates
That doing obs so highly rates;
Despatch that coded message fast,
Please the weatherman at last.

Receipt of all your real-time data
Is sure to brighten the weather forecaster;
Indeed the extras are a boon,
So please do send us more quite soon. — Editor

Personalities

RETIREMENT—CAPTAIN G. F. WILLIAMS, MNI, retired on 18 September 1985 after almost 40 years' service in the companies of Ocean Fleets.

George Forrester Williams was educated at Hawarden Grammar School and underwent pre-sea training at the School of Navigation of the Liverpool Polytechnic, and the Outward Bound School at Aberdovey. In 1945 he was indentured as an Apprentice to Elder Dempster Lines and sailed on m.v. *Deido* in September of that year.

'Mike' Williams first sent us a meteorological logbook containing his records from the *Accra* in June 1956 and gained his Master's Certificate in the following year. Following the merger of Elder Dempster Lines with the Blue Funnel Company, Alfred Holt Ltd, in 1967, he served in all the companies operated by Ocean Fleets, including Blue Funnel, Glen Line, Henderson Line, Ocean Titan and Elders. His first command was the m.v. *Rabala* in August 1965.

Captain Williams is proud to have come from a Deeside family that can be traced with an unbroken line of seafarers back to the beginning of the last century. He says that his son, now a Third Officer, should carry the line into the twenty-first century.

There are 15 meteorological logbooks in the Met. Office archives benefiting from Captain Williams' co-operation, 3 of which were assessed as Excellent and one of them resulting in an Excellent Award in 1984.

We would like to take this opportunity of wishing Captain Williams well in his retirement, and success in his various leisure activities. He says that despite being christened otherwise, he cannot remember being called any name but 'Mike' in his life — this being guaranteed to confuse.

RETIREMENT—CAPTAIN R. H. ARNOTT, RD, RNR, retired as Master of the Queen Elizabeth 2 on 31 July 1985, after 45 years at sea.

Robert Harry Arnott was born in N.S.W., Australia, in 1923, came to England as a child and was educated at Fleetwood Grammar School. He began his sea-going career with Blue Funnel Line in 1940 aboard the *Antilochus*, and during the Second World War carried troops and supplies in all the main fields.

On joining Cunard Line in 1947, Captain Arnott stood by R.M.S. *Queen Mary* during her post-war reconversion from troop carrier to luxury passenger liner and later sailed in the cargo ship *Vasconia*, from whence the Met. Office received the first of 20 meteorological logbooks he compiled.

On obtaining his Master's Certificate in August 1950 he sailed in *Caronia* and subsequently in almost all the famous Cunard liners, including the old *Queens*.

Captain Arnott first joined the *QE2* as Chief Officer shortly after the ship's launch on Clydeside in 1967 and sailed on her maiden trans-Atlantic crossing. His first command was *Caramania* in 1971, and he later commanded *Cunard Ambassador*, *Adventurer*, *Countess* and *Princess*.

He first took command of the *QE2* in 1976 and remained with the ship as senior Captain until his retirement; he invited a party from the Met. Office Marine Division to tour the ship in July 1984.

Captain Arnott is a retired Captain of the Royal Navy Reserve and holder of the Reserve Decoration and Bar. He is a keen sportsman and in his younger days played rugby and cricket for several clubs including United Services and Fleetwood. He now confines his hobbies to golf and motoring, and we wish him the very best in retirement at his home in Fleetwood.

RETIREMENT—CAPTAIN C. BECK retired from C. P. Bulkships Ltd on 30 June 1985, after a 42-year sea career with various shipping companies.

Cyril Beck was born in 1926 and educated at St Anselm's College, Birkenhead. In September 1943 he joined the Royal Netherlands Line and was seconded to Netherlands Shipping and Trading, starting his career on m.v. *Christian Huygens*. After two years he transferred to the Larrinaga Steamship Company Ltd, and carried out his first weather observations on one of several *Larrinaga* ships he served in. However, the first records received bearing Captain Beck's name, from a Selected Ship, came from the s.s. *Empress of France* in September 1952, in which year he had joined the Canadian Pacific Steamship Company. He sent us a number of meteorological logbooks, all eight of which were marked Excellent, from the renowned *Empress* liners; and in all, 26 logs benefited from his participation.

Captain Beck gained his Master's Certificate in 1952 and he was appointed to his first command, the *Beaverelm*, in April 1965. His active service in the Second World War was mainly in the North Atlantic and Mediterranean, with a voyage to South America and India. In a recent letter to the Met. Office, he wrote: 'Whilst being grateful for your thanks to me for my observing efforts, I think the greater debt is ours to you for all the forecasts, gale warnings and weather maps over the past thirty and more years; even today, I take pleasure in studying the fine detail of the weather charts shown after the TV news service in the evenings.'

We send good wishes for a prolonged and fulfilling retirement to Captain Beck and his wife, and wish success to his eldest daughter who is about to qualify in medicine.

J.F.T.H.

Book Reviews

The Butterflies of Northern Europe by Björn Dal. 205 mm × 125 mm, 128 pp., *illus*. Croom Helm Ltd, Provident House, Burrell Row, Beckenham, Kent BR3 1AT. Price: £5·95 (in U.K. only).

This booked is designed for the novice observer of butterflies or the casual reader interested in what may be seen during walks and rambles. The introduction says the guide is 'intended to be a northern summary of, and supplement to, the standard work on European butterflies, *A Field Guide to the*

Butterflies of Britain and Europe' and focuses on those specimens which can be found in the various habitats of the British Isles and northern Europe, excluding the very high northern latitudes.

Field guides on this subject often devote pages to detailed and lengthy explanations of species classification, anatomy and how to collect, kill and set specimens, there is sometimes too much information for the beginner. However, this book gives only the basics about the external appearance of the insects, their classification, differences from moths and also information on butterfly flight, reproduction, behaviour and the use of markings as a camouflage to deceive predators. With conservation in mind, the need to observe and collect specimens carefully is stressed, and the would-be collector is advised to conform to the Code for Insect Collecting as laid down by the Royal Entomological Society, the address of which is listed.

Whereas other books deal with specimens in order of classification, this volume differs significantly in that it is divided into sections which cover each type of habitat or biotope, thus enabling an unidentified butterfly to be more easily located by looking up the type of surroundings in which it was seen, rather than checking every page for something 'brown with spots on the wing' and possibly finding several species answering that description.

The author has illustrated the subjects beautifully with his own life-size colour paintings which dominate each page, negating the need for detailed descriptions. However, since the book also gives the small variations in wing colour patterns which can differentiate one sub-species from another, the enthusiastic learner would be strongly advised to first net his butterfly before positively identifying it. Even though the book's emphasis is intended to be on the adult butterflies, it is a pity that there are no illustrations of at least a few of their caterpillars; some idea of what to look for in each biotope would have been useful as it is often this stage of the life-cycle which can be most readily studied at close quarters, and which will bring the keen observer back to the area later to see the adults on the wing.

A slim volume, this book is a handy size to carry in the field, but in that case, would benefit from a strong, flexible cover rather than the rigid one it has; even so, it is a valuable introduction to the colourful and exotic world of butterflies especially for the reader in the geographical area on which it concentrates, looking for butterflies in his 'own back yard'.

J.M.

Raffles, The Story of Singapore by Raymond Flower. 300 mm × 215 mm, 374 pp., *illus*. Croom Helm Ltd, Provident House, Burrell Row, Beckenham, Kent BR3 1AT. Price: £18·95.

This book is as much a detailed biography of a great hotel as a story of a thriving city-state owing much to its illustrious founder. It describes how the Union Flag was planted on a small, deserted island off the tip of Malaya in 1819 by Sir Stamford Raffles, producing the city of Singapore which has been a focal point in the melodrama of money.

Augmented by almost 300 monochrome and about 40 coloured photographs, this is a work which will be particularly interesting to the Singaphile, both in the present and in colonial days. The author was inspired to compile this history after talking to Chinese, Tamil and Malay officers aboard a Straits ship some years ago, and finding that they were all Singaporeans, all well-educated but without the least idea of their country's history. He sets out to narrate on the founding, growth and coming of age of this bustling community.

Known to have supported a settlement between 6000 and 2000 B.C., the first record is of a town called Tumasik in 231 A.D. In 1299, the first King of Singapura was said to be Sri Tri Buana, whose successors were subdued by Portuguese settlers after the taking of Malacca in 1511.

When Sir Stamford Raffles set out from Penang in January 1819, he little knew to what heights a city would rise where he stepped ashore in Singapore the same month.

The book chronicles all the main events following this beginning, embracing the important happenings at the famous hotel in honour of the city's founder. It is first and foremost a story of the people of several races whose influence made it renowned as a rich crossroads for all the world's trade, and includes chapters about pirates, secret societies, the Second World War and the emergence of Lee Kuan Yew and Singapore's meteoric rise to become a mini-superpower.

The text is kept straightforward, but it is the artwork which is a special delight in this lengthy book, filling many pages with a complete visual catalogue of many aspects of the life and times of the oriental metropolis.

J.F.T.H.

The Violent Earth by Frank W. Lane.* 246 mm × 189 mm, 224 pp., *illus.* Croom Helm Ltd., Provident House, Burrell Row, Beckenham, Kent, BR3 1AT. Price: £13·95.

This book reflects the many changes and new phenomena that have been recorded since the publication of Frank Lane's 1945 work *The Elements Rage*, which saw four editions in Britain and was published in five other countries. The book ranges over the sciences of meteorology, astronomy and geology, and has references to history, physics and mathematics.

It contains some incredible accounts and statistics, recorded from the earliest existent documents up to the present day, of the extremes of Nature's fury and the equally remarkable results. It is a marvellous book to dip into from time to time, even if one has already been through it from cover to cover, particularly as a reference when experiencing any of the manifestations so vividly described. 'Incredible' is perhaps the commonest adjective that springs to mind when reading of the more bizarre natural happenings, but the twelve pages of bibliography give the facts ample authentification. Frank Lane has been a populariser of natural science for most of his life, in books, magazines, broadcasts and lectures. Although he points out that his book is not a detailed treatise and much of the material concerns facts and observations mainly of interest to the layman, he supplies a satisfactory balance of historical and technical data to suit the majority of tastes.

The ten chapters deal with hurricanes, tornadoes, waterspouts, hail, lightning, avalanches, floods, meteoroids, earthquakes and volcanoes. There is also a conversion table from imperial to metric units, as the author has seen fit to use the former, deeming it probable that the majority of English-speaking readers would be more at home with imperial units. He probably did not anticipate that the book would be seven years in preparation and that it would be published at a time when the metric system would, I believe, have been more appropriate to changing standards of education and common usage.

The 70 colour photos and 30 half-tones by numerous photographers add a fascinating dimension to the excellent prose and keep one returning to look again at some of the remarkable consequences of Nature's cruel tricks. Both the illustrations and the descriptions are worthy of retention on the bookshelf of anyone with an interest in the wonders of natural occurrences.

J.F.T.H.

**The Violent Earth* has been chosen as the special book to be presented in 1986, to Masters and Officers as Excellent Awards.

Notices to Marine Observers

APPOINTMENT OF PORT METEOROLOGICAL OFFICER

Captain A. Britain has been appointed Port Meteorological Officer, East England, in succession to Captain J. Bentley, who retired on 4 June.

Albert Britain was apprenticed to the Medomsley Shipping Company in 1948 and 3 years later joined the New Zealand Shipping Company as Fourth Officer. He gained his Master's Certificate in 1958 and, following promotion to Chief Officer, was appointed Marine Inspector for new buildings for a time. Soon after he assumed his first command in December 1969, the N.Z.S. Company was integrated with P & O, and Captain Britain became Assistant Marine Manager in 1974 and Assistant Development Manager 3 years after that.

On leaving P & O in early 1979, he joined the Ocean Weather Ship Service and sailed in the OWS *Admiral Beaufort* until that ship was replaced by *Starella* at the beginning of 1982, at which time he was Chief Officer of the former. He was then appointed Ocean Weather Ship Officer, based at Fleetwood, and has remained in that post to the present.

Captain Britain continues to husband the present U.K. Weathership, *Cumulus*, travelling to Greenock as necessary to service the ship during her 2-day turn-round every five weeks.

TROPICAL OCEAN and GLOBAL ATMOSPHERE PROGRAMME

As a component of the World Climate Research Programme, the World Meteorological Organisation is seeking assistance in the Tropical Ocean and Global Atmosphere programme (TOGA), which formally began in January 1985.

TOGA is a long-term study of the interannual variability of the tropical oceans and global atmosphere. Scientists have still only partially answered the question of what was the primary cause of the disastrous El Nino event of 1982–1983, which caused the worst drought in Australia for 200 years, devastation to the people, villages and economy of several South American countries and affected sea levels and temperatures as far north as Alaska. No one nation can provide all the observations and research that is required and the TOGA Scientific Steering Group is asking for increased ship weather observations from the tropical belt, 30°N to 30°S.

TOGA has three major components: 'ten-year measurements' of variables relevant to scientific objectives; 'real-time assessment' of large-scale variations in the field of operations; 'modelling studies' of various levels of complexity.

There is a continuing need for regular, good quality observations, transmitted to Coast Radio Stations in real-time, and Masters are requested to co-operate where possible.

A brochure explaining the need for the TOGA experiment is available from U.K. Port Meteorological Officers or the Marine Division at Bracknell.

PORT METEOROLOGICAL OFFICE: CHANGE OF TELEPHONE NUMBER

The telephone number of the Port Meteorological Office for south-east England has recently been altered to a six-digit figure. The office can now be contacted on 0375 378369.

Fleet Lists

GREAT BRITAIN (Information dated 14.3.86)

The following is a list of British ships which have been equipped with instruments and which voluntarily co-operate with the Marine Division of the Meteorological Office.

The names of the Masters, Observing Officers and Senior Radio Officers are given as ascertained from the last written returns received. The date of receipt of the last return is given in the second column. An asterisk indicates a new recruitment who has not yet sent in a logbook.

All returns received from observing ships will be acknowledged, direct to the ship, by the Marine Superintendent of the Meteorological Office.

The Port Meteorological Officers will make personal calls on the Masters and Observing Officers as opportunity offers, or on notification from the ship at any time when their services are desired.

Excellent Awards are made at the end of each calendar year. The names of the Masters, Principal Observing Officers and Radio Officers gaining these awards are published each July in *The Marine Observer*.

It is requested that prior notification of changes of service, probable periods of lay-up, transfer of Master or other circumstances which may prevent the continuance of voluntary meteorological service at sea, may be made to a Port Meteorological Officer or to the Marine Superintendent of the Meteorological Office at Bracknell.

Masters and Officers are invited to point out any errors or omissions which may occur in the list.

Selected Ships

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
Abbey	21.1.86	P. Creber	G. R. Green, R. W. Mitchell, D. G. Olley	P. Corkin	Furness Withy (Shipping) Ltd
ACT 1	25.11.85	A. W. Kinghorn	J. G. Ewart, A. H. Mordey, B. M. Truran	J. R. Cowan	Blue Star Ship Management Ltd
ACT 2	20.9.85	D. I. Moore	M. P. Green, J. J. Dibben, T. M. Dawson	F. A. Dunn	Cunard Shipping Services Ltd
ACT 6	24.2.86	E. R. Jenkins	S. E. Richard-Dit-Leschery, S. Parvin, M. G. Lange	D. Callicott	Cunard Shipping Services Ltd
ACT 7	16.1.86	N. D. T. Johnson	W. Mitchell, D. A. Parsons	S. Hollingworth	Blue Star Ship Management Ltd
ACT 8	7.1.86	P. Bishop	F. Whitaker, R. Spence, P. W. Jackson	C. S. Carver	Denholm (I.O.M.) Ltd
Adelaide Express	29.10.85	R. K. Bansal	Sandeep Mehta, P. C. Malhotra, S. K. Malhotra	S. J. Walanj	Silver Line Ltd
Afric Star	11.3.86	A. W. Kinghorn	S. J. Davies, A. J. Brown, R. Shuttleworth	R. Collins	Blue Star Ship Management Ltd
Al Shamiah	23.10.78	T. Williams	P. Walley		United Arab Shipping Co. (S.A.G.)
Albright Explorer	14.1.86	J. H. Kitching	J. Warmingham, D. Thomas, G. Hodge	P. Sutcliffe	James Fisher & Sons P.L.C.
Albright Pioneer	20.12.85	D. A. Maclean	T. J. O'Connell, M. J. Earley, J. V. Davies	S. P. Miller	James Fisher & Sons P.L.C.
Alert	3.1.85	A. Chalmers	P. Footman Williams, C. J. Miners, D. M. Shepherd	J. Vaughan	British Telecom International
Andes	11.12.85	B. Walmsley	K. L. Brooks, G. C. Claye, A. W. Jones	D. Hobson	Furness Withy (Shipping) Ltd
Andes Trader	6.11.85	J. Waling	P. C. Faulkner, R. Harrison, P. C. H. Adair	D. A. Macrae	Canadian Pacific Steamships Ltd
Apapa Palm	*	E. D. Somes	C. J. Griffiths, S. Houldsworth, K. Wilkinson	T. Scott	Ocean Fleets Ltd
Appleby	28.1.86	R. Copeland	D. J. Vickery, I. C. Gravatt, I. Buckley	R. B. Fuller	Ropner Management Ltd
Aquamaster	18.10.84	A. M. Stobbs	P. R. Anderson, A. H. Roberts, D. Bell	P. Winning	Wallem Specialised Management Services Ltd
Arapaho	12.3.86	J. W. Staines	R. A. Crook, G. Collinson, C. Boorman	J. Mahon	Silver Line Ltd
Atlantic Confidence	18.12.85	J. C. S. Yeo	J. A. C. Pearce, C. D. Hall, M. S. Morgan	A. R. King	Furness Withy (Shipping) Ltd
Atlantic Conveyor	19.12.85	J. K. Cooper	N. J. Nash, J. Brocklehurst, M. Stenzel	A. R. Taylor	Cunard Shipping Services Ltd
Atlantic Fisher	21.9.82	H. Vane	I. F. Scarr, M. G. Wood, H. McWilliam	A. E. H. Jones	James Fisher & Sons P.L.C.

Atlantic Star	10.12.85	C. S. Kingston	K. M. Phillips, M. Binnie, S. G. Millar	H. O. C. Grattan	Cunard Shipping Services Ltd
Atlantic Universal	17.12.85	I. J. Farquharson	I. V. Hughes, D. P. Neaves, A. Macpherson	I. Johnston	Gateway Shipping Ltd
Auckland Star	•	W. Jones	A. Himorbey, J. Ewart, N. J. Barr	A. Pampling	Blue Star Ship Management Ltd
Author	16.12.85	R. Smith	B. H. Birch, W. Nute, G. Stewart	W. F. Stirling	T. & J. Harrison Ltd
B.P. Harrier	5.6.85	D. Hamilton	P. M. Bowers, I. V. Hawkeswood		B.P. Oil Ltd
B.P. Humber	8.1.86	D. M. Rundle	M. Alve, N. H. Moore, A. M. Lakey		B.P. Shipping Ltd
B.P. Tweed	15.1.86	R. C. Stevens	R. Bertrand, E. Bordador, C. Saberon	A. Tayko	B.P. Shipping Ltd
B.P. Vigour	8.1.86	B. Wardman	I. Sloan, K. A. Rudd	D. Walker	B.P. Shipping Ltd
B.P. Vision	•	J. Ronald	F. W. O'Neill, M. Deeming, R. McCracken	N. Stephens	B.P. Shipping Ltd
Baltic Eagle	30.7.84	A. W. Wilford	T. Ghest, T. J. Macguire	J. D. Walsh	United Baltic Corp. Ltd
Baltic Progress	4.9.85	R. Kreamer	M. Kearney, B. L. Mullenger, R. H. Parker	D. A. Logan	United Baltic Corp. Ltd
Baron Belhaven	21.1.86	L. M. Hocking	M. W. Jubb, R. J. Sinclair, P. C. Mackay	A. E. J. Honan	Lyle Ship Management Ltd
Baron Kinnaird	7.8.85	W. Anderson	J. G. Wood, P. Buckley, C. Doris	R. C. Gaches	Lyle Ship Management Ltd
Bello Folawiyo	23.7.85	P. A. Smith	K. P. Widdowson, D. W. Stocks, I. C. Offland	T. F. Scott	Ocean Fleets Ltd
Benalder	31.1.86	G. Reid	D. Bathgate, J. Clark, L. D. Thomson	P. A. Barratt	Ben Line Steamers Ltd
Benavon	14.1.86	C. P. Browne	P. S. Sinclair, J. M. Groat, R. F. Sherwood	J. R. Crockett	Ben Line Steamers Ltd
Benedict	14.2.86	G. E. Round	L. St J. Campbell, A. Delaney, R. Morrison	I. M. Clarke	Blue Star Ship Management Ltd
Benhope	5.3.86	M. P. Tennant	I. C. Brown, R. I. Cuthbert, F. I. Hogg	B. Donaldson	Ben Line Steamers Ltd
Binsnes	11.2.86	T. Smith	C. A. Rose, C. G. Wilton, R. C. Avenin	S. D. Fitzgerald	Jebsens Ship Management Ltd
Bise	27.1.86	M. M. Kennedy	C. I. Macleod, J. McFadden	D. S. Watson	Denholm Ship Management Ltd
Bluestream	18.2.86	R. N. Cumbers	Chung C. Lee, E. R. Bruce, N. Sharma	R. Dalgado	Fyffes Group Ltd
Bolnes	5.9.85	R. W. H. Dole	C. W. Milne, W. Brackenridge, K. Mackay	P. Orpwood	Jebsens Ship Management Ltd
Boniface	19.12.85	J. F. Rowe	F. K. Robertson, A. Tibbott, A. Brown	N. E. Scott	Blue Star Ship Management Ltd
Bora Universal	2.10.85	C. E. W. Ramsden	R. A. Thomson, A. Hardman, J. Piggott	N. Lawrence	Gateway Shipping Ltd
Botany Bay	5.2.86	A. J. Leslie	N. C. Jones, T. G. Whittaker, D. P. Crowley	T. Searle	Overseas Containers Ltd
Bransfield	29.5.85	M. J. Cole	J. B. Hawkins, F. R. Jackson, J. A. O'Connor	R. Wade	British Antarctic Survey
Bridgeman	7.1.86	A. J. Laurillard	P. A. Marris, D. W. Rice, R. A. Eveleigh	H. C. Salmon	Rowbotham Tankships Ltd
British Beech	4.9.85	A. Wilkinson	J. McIntyre, P. A. Ganley, A. Drew	N. Flather	B.P. Shipping Ltd
British Dart	8.10.85	D. A. White	M. J. Aldred, P. M. Cross, P. R. Baugh	C. P. Hill	B.P. Shipping Ltd
British Esk	24.2.86	G. K. Waite	M. J. Aldred, M. C. Roberts, R. A. Nolan	D. Bone	B.P. Shipping Ltd
British Forth	21.1.86	S. Garratt	A. Wallace, D. Corlett, H. J. Stribblehill	N. Jarman	B.P. Shipping Ltd
British Kennet	21.3.85	L. McGeoch	C. Southwell, C. D. Whittemore, C. A. G. Sibley	A. Brown	B.P. Shipping Ltd
British Ranger	6.3.86	A. H. Skellern	E. C. Smith, H. A. Bailey, R. D. Wallace, L. L. Wallace	B. Casey	B.P. Shipping Ltd
British Reliance	22.11.84	R. A. W. Jarrett	G. R. Snow, S. J. Viney	G. R. Wilson	B.P. Shipping Ltd
British Renown	23.1.86	G. Luff	J. Mellish, M. S. Vidgeon, I. L. Sutherland	C. Roberts	B.P. Shipping Ltd
British Resolution	16.10.84	G. Waite	J. A. Condie, I. Campbell, T. M. Stones	N. Stephens	B.P. Shipping Ltd
British Resource	13.1.84	M. Stephenson	I. Hodge, R. Whatmore, K. Lynch	C. Davidson	B.P. Shipping Ltd
British Respect	13.3.86	L. V. McGeoch	J. C. Patterson, T. M. Stones, M. Amos	A. M. Midgley	B.P. Shipping Ltd
British Security	11.3.86	D. R. Coombes	C. R. D. Soanes, S. Keitch	A. J. Steven	B.P. Shipping Ltd
British Skill	10.3.86	M. Dunning	A. S. Kenyon, M. K. Gregg, P. A. Darlow	A. T. Riordan	B.P. Shipping Ltd
British Spirit	4.3.86	A. Brown	P. D. Walker, W. Young, S. A. Chadwick	M. Muirhead	B.P. Shipping Ltd
British Steel	27.1.86.	G. V. Spong	S. W. Douglas, R. Berry, D. Lyon	J. Hetherington	Furness Withy (Shipping) Ltd
British Success	14.2.86	D. E. Mitchell	M. J. Lindsley, K. T. R. Litchfield, P. F. Amitage	R. G. Hall	B.P. Shipping Ltd
British Tamar	15.11.85	F. A. Smith	S. Allibone, G. M. Gardner, A. J. Cable	D. Bone	B.P. Shipping Ltd
British Tay	30.7.85	J. Smith	M. R. Dickinson, S. Ford	D. Bone	B.P. Shipping Ltd
British Tenacity	21.10.86	F. A. Smith	D. L. Culton, K. E. Powell, K. A. Rudd	D. A. Richards	B.P. Shipping Ltd
British Test	28.1.86	G. Luff	J. W. Gough, F. J. Routledge, D. S. Styles, A. Chylak	R. J. Bryne	B.P. Shipping Ltd

Selected Ships *(contd)*

Name of Vessel	Last Return Received	Master	Observing Officers	Senior Radio Officer	Owner/Manager
British Trent	10.3.86	M. T. Gordon	J. N. Gregson, J. Dunne, P. Seaman	K. Kielthy	B.P. Shipping Ltd
British Wye	22.1.86	K. Meacock	R. McGuire, M. I. Hambly, D. J. Buckley	N. M. Collins	B.P. Shipping Ltd
Broompark	4.2.86	J. G. Ridley	W. T. Duncan, R. D. M. Gilchrist, C. Leggat		Denholm Ship Management Ltd
Buffalo	31.1.86	J. D. McCann	M. E. Ingham, K. P. Riley	J. C. Byrne	P. & O. Ferries
C. G. M. Provence	27.2.86	H. S. Bladon	P. M. Basham, R. Jackson, R. J. Dobson	M. D. Walsh	T. & J. Harrison Ltd
Cable Venture	18.2.86	M. R. Holley	D. Wilson, F. J. Hill	R. A. Perry	Cable & Wireless P.L.C.
Cableman	6.1.86	J. H. Bates	N. A. Lovesy, H. A. Williams	R. R. Hughes	Rowbotham Tankships Ltd
Cairnsmore	20.12.85	E. M. McDonnell	M. R. Johnson, C. L. Rees, R. Engineer	R. L. Chesterman	Indo-China S. N. Co. (Hong Kong) Ltd
California Star	28.2.86	R. Brownbill	G. A. Hoe-Richardson, S. M. Scott, M. J. Locke	R. Knott	Blue Star Ship Management Ltd
Canadian Explorer	31.1.86	R. Llewellyn	K. L. Brooks, A. Niblock, D. Kennedy, I. Hay	I. Hay	Furness Withy (Shipping) Ltd
Canada's Tomorrow	•				Canada's Tomorrow Discovery Corp.
Canberra	14.1.86	I. Gibb	R. H. Bowler, P. J. Derham		P. & O. Lines Ltd
Canmar Ambassador	23.9.85	G. N. Gaunt	P. G. Cole, P. E. Jolley, S. E. Westcott, D. A. Hall	H. N. Pollard	Canadian Pacific Steamships Ltd
Canmar Venture	10.12.85	G. D. C. Fraser	J. A. Turner, J. R. Williams, D. A. Elliott	R. P. Phillpott	Canadian Pacific Steamships Ltd
Canterbury Star	•	J. Morcom-Harneis	A. Richmond, A. Weaver, C. Jackson	A. Steele	Blue Star Ship Management Ltd
Cape Arnhem	6.1.86	S. W. Wright	P. B. W. Newton, C. Parton, D. L Coe, P. Buckley	J. MacNeil	Lyle Ship Management Ltd
Cape Finisterre	20.9.85	D. White	D. Farrington, P. McKay, R. G. Wiggins	T. Davies	Lyle Ship Management Ltd
Capricorn	•				Kappa (Maritime) Ltd
Cardigan Bay	18.12.85	R. J. Bland	R. B. Gurney, M. Watts	B. A. Mullan	Overseas Containers Ltd
Carina	•				Kappa (Maritime) Ltd
Cast Husky	25.11.85	M. Thomson	R. F. Gribben, B. C. W. Norton, I. Craig	R. Boatman	Denholm Ship Management Ltd
Cast Muskox	4.12.85	B. McManus	R. G. Valentine, W. T. Wood, N. Whittaker	R. A. S. Macmeikan	Denholm Ship Management Ltd
Cast Otter	28.10.85	R. W. Cotter	B. J. Main, R. J. Westwater, W. T. Munro	J. Sant	Denholm Ship Management Ltd
Catalan Bay	•	A. I. Juvale	M. M. M. Soni	N. P. Venugopalan	Shipping Management S.A.M.
Celtic Endeavour	31.12.85	D. M. Dixon	P. Borley, I. R. Reid		C. M. Willie & Co. (Shipowners) Ltd
Celtic Link	18.2.82	H. Gray	H. W. Stewart, S. Duncan	D. N. Barlow	Ben Line Steamers Ltd
Celtic Mariner	20.11.85	E. Gannon	J. F. Besch	N. Voss	C. M. Willie Co. (Shipowners) Ltd
Celtic Voyager	20.11.85	P. Dodge	C. Clark, A. Speed, J. F. Besch, B. W. Bedworth		C. M. Willie & Co (Shipowners) Ltd
Centaurus	•				Kappa (Maritime) Ltd
Charles Darwin	22.1.86	P. H. Warne	R. J. Chamberlain, S. Jackson, R. Hagley	J. Baker	Natural Environment Research Council
Chelsfield	•	M. Cummings	D. M. P. S. Gunaratne, D. Brown, D. Green	B. C. Van Twest	Buries Markes (Ship Management) Ltd
Cirolana	31.7.85	J. R. French	R. Hunt, B. A. Chapman, R. C. Newrick, R. Woodhouse	R. Baty	Ministry of Agriculture, Fisheries & Food
City of Edinburgh	3.2.86	A. Maclean	V. J. Walters, T. Rowe, D. Sutherland	D. N. Barlow	Ben Line Containers Ltd
City of Plymouth	17.12.85	E. G. George	T. Oliver, B. Hoyle, S. R. Allaker		Ellerman Lines Ltd
Clione	12.8.84	J. R. French	B. A. Chapman, R. F. Graham, E. W. Pearson		Ministry of Agriculture Fisheries & Food
Clydebank	12.11.85	D. M. McPhail	D. A. Hickman, J. K. Ward, B. Stirling	W. J. M. Campbell	Bank Line Ltd
Coastal Pioneer	•	M. M. MacInnes	J. Young, D. Jennings		Fortoser Ltd
Corato	•	D. Dickson	M. S. MacCall, P. Patterson, B. Summerill	D. K. Ellas	Furness Withy (Shipping) Ltd
Crestbank	30.12.85	P. J. Elder	G. W. Farrant, P. M. Frost, N. J. Harvey	R. J. McMurtry	Bank Line Ltd

Dacebank	30.12.85	D. L. Jones	F. E. A. Kent, W. E. Lewis, W. W. Davies	M. H. Stalker	Bank Line Ltd
Dallington	16.1.86	M. Arkley	I. R. Whitehead, K. Whittaker	F. R. Gerstner	Stephenson Clarke Shipping Ltd
Dart Americana	28.1.86	G. A. Jenkins	S. C. Breton, P. M. Bell, C. Pickin	J. Hussey	Canadian Pacific Steamships Ltd
Dart Atlantica	7.3.86	D. Greenhalgh	T. Risebrow, C. Rossell, C. Harding	D. Busveids	Canadian Pacific Steamships Ltd
Dart Britain	20.12.85	A. G. Pound	M. J. Daw, R. J. Owen, A. W. Jones	I. D. Hay	Furness Withy (Shipping) Ltd
Devonshire	3.10.84	R. A. F. Edwards	A. Pailing, R. Hodgson, R. B. Gillett	J. G. Palethorpe	Bibby Line Ltd
Discovery Bay	4.3.86	A. J. Fee	J. W. Stockdale, C. C. Younge, D. K. MacLeod	C. Y. Constantinou	Overseas Containers Ltd
Donnington	3.1.86	G. Young	M. A. Knight, A. Wormald	A. Campbell	Stephenson Clarke Shipping Ltd
Dragon	2.12.85	M. Edward	H. Corkhill	D. Thomas	Townsend Car Ferries Ltd
Drupa	12.3.86	B. Bowtell	C. M. Scott, P. Steele, D. S. Warren	G. K. Emmett	Shell Tankers (U.K.) Ltd
Dryso	16.7.85	O. Thisland	G. Kristiansen	P. Sedmundseth	Van Ommeren U.K. Ltd
Durrington	20.8.85	J. N. Ramsay	M. F. Poulloin, G. L. Crawford	K. T. Whytock	Stephenson Clarke Shipping Ltd
E. W. Beatty	14.3.86	A. McGrail	F. V. Hopping, A. P. Sharp, R. Mackinnon	J. Blaylock	Canadian Pacific Steamships Ltd
Ebalina	30.12.85	M. R. Cowton	C. W. Seagrave, M. McHugh, G. Wilkinson	M. A. O'Brien	Shell Tankers (U.K.) Ltd
Eburna	18.2.85	J. P. M. Cusson	I. Reed, J. Weir	J. Cully	Shell Tankers (U.K.) Ltd
Echoman	19.12.85	R. D. Andrews	M. P. Thomason, M. W. S. Royall, R. R. Miller	P. J. Griffin	Rowbotham Tankships Ltd
Elgurdabia	17.12.85	P. J. Duff	A. J. Goldsmith, M. Browning, S. C. Westrip	C. Bolton	Ocean Fleets Ltd
Elk	2.1.85	M. R. Godfrey	R. W. Madden, N. M. Hardy, J. M. Latus	R. Stewart	P. & O. Lines Ltd
Encounter Bay	5.3.86	L. E. Howell	D. L. Haynes, K. W. Macmillan	B. Matten	Overseas Containers Ltd
English Star	•				Blue Star Ship Management Ltd
Entalina	•	H. J. Tibbs	S. Williams, A. Howe, J. Cripps	C. Duggan	Shell Tankers (U.K.) Ltd
Enterprise	24.2.86	E. Lakin	R. Malone, P. Thompson, T. L. Lloyd	S. Rogers	Souters Shipping Ltd
Equinox	11.10.85	J. Burt	I. G. Robertson, J. M. Till, G. R. Wise	P. Blunn	Souters Shipping Ltd
Erinna	27.11.85	R. A. H. Lawson	S. J. Dunbar, D. A. Thomson, P. T. I. Pinches	J. Connelly	Shell Tankers (U.K.) Ltd
Ervilia	•	N. Bradbrook	M. Rutherford, S. Barber, J. Brown		Shell Tankers (U.K.) Ltd
Esplanade	24.10.85	T. Robinson	B. G. Hedley, H. A. James, P. C. Harris	D. M. Sugden	Souters Shipping Ltd
Esso Aberdeen	23.1.86	T. C. Ramsay	W. B. Wilson, D. R. A. Diggory, A. M. Hoare	A. J. Christopher	Esso Petroleum Co. Ltd
Esson Demetia	20.9.85	I. D. Grigor	R. J. McLellan		Esso Petroleum Co. Ltd
Esso Humber	9.4.84	R. B. Walker	D. R. A. Diggory, R. Moss, R. Samson	G. M. Kelly	Esso Petroleum Co. Ltd
Esso Tees	26.11.85	J. W. Aalen	P. Grounds, K. Lightbody, M. Walsh	C. McNeilly	Esso Petroleum Co. Ltd
Esso Warwickshire	24.10.85	C. Jorgensen	K. J. Bosanquet, N. R. Foster, A. G. Pompa	R. A. Smith	Esso Petroleum Co. Ltd
Etrema	8.10.85	M. Lewis	G. C. Squirrell, I. Rees, G. Nicholls	G. G. Graham	Shell Tankers (U.K.) Ltd
Eulima	30.1.86	G. Wilson	D. Brownless, S. Zadziuk, P. N. Bowden	A. G. Fielding	Shell Tankers (U.K.) Ltd
Eulota	11.2.86	G. J. Peace	N. A. Hurrell, D. R. Salmon, K. A. G. Biscoe	J. Cully	Shell Tankers (U.K.) Ltd
Euplecta	•	D. J. Sloan	W. M. Barry, R. A. M. Gupta, N. Griffiths	M. Collingwood	Shell Tankers (U.K.) Ltd
Europa Point	20.1.86	I. C. Dorse	Muhammad Gulzar, Syed Qaisernasir, Syed Ali Anwar Jaffry	M. A. S. Siddiqui	Acomarit U.K. Ltd
Eye of the Wind	12.1.83	R. S. Grono			Adventure Under Sail
Falmouth Bay	2.1.86	R. Brinkworth	T. A. Davies, D. L. Batchelor, C. J. Petty	E. B. Stephenson	Overseas Containers Ltd
Farland	5.2.86	T. Armstrong	A. R. Hellyer, R. Wylie, A. Reid	F. M. McQuillan	Ropner Management Ltd
Farnella	30.12.85	R. Hadgraft	L. Whur, F. Gordon		J. Marr & Sons Ltd
Farnes	19.2.85	D. P. Platt	B. W. Townsend, R. Claridge, R. Cubbage	G. A. Bird	Jebsens Ship Management Ltd
Fengtien	28.2.86	J. H. Gomersall	H. J. Brooks, S. J. Guy, R. H. Lewis	T. K. Cheng	J. Swire & Sons Ltd
Festival	13.3.86	N. M. Whyte	A. N. Khan, M. Qasim, A. Rizvi	Raizur Rehman	Gulf (Shipowners) Ltd
Firmnes	8.10.85	J. Aspey	I. M. Herbert, D. J. Ayling, M. B. Williams	D. R. Allen	Jebsens Ship Management Ltd
Fleetwave	10.2.86	C. J. B. Trinick	P. S. Rawat, J. S. Murray	M. Dias	Fyffes Group Ltd
Flinders Bay	24.12.85	P. J. R. Manson	S. C. Lugg, C. C. Woodward, P. C. D'Arcy	V. A. Gorny	Overseas Containers Ltd
Fort Assiniboine	12.12.85	R. I. Kinnier	D. A. Hall, A. K. Soward, C. P. Howard	F. Barritt	Canadian Pacific Steamships Ltd

Selected Ships *(contd)*

Name of Vessel	Last Return Received	Master	Observing Officers	Senior Radio Officer	Owner/Manager
Fort Dufferin	20.1.86	B. G. Roberts	J. Badham, G. P. J. Young, R. M. Cole	S. Cockburn	Canadian Pacific Steamships Ltd
Fort Frontenac	7.3.86	B. G. Roberts	R. J. Pease, R. J. A. Gayton, M. J. Clark	D. l'Anson	Canadian Pacific Steamships Ltd
Fort Garry	18.12.85	D. A. Tipping	J. R. Payne, L. N. Paul, K. L. Jackson	H. N. Pollard	Canadian Pacific Steamships Ltd
Fort Hamilton	8.7.85	A. Matthews	D. Harnett, R. M. Cole, I. D. Smith	G. P. J. Ellison	Canadian Pacific Steamships Ltd
Fort MacLeod	23.10.84	G. S. Oakley	M. Benson, C. P. M. Lucas	R. E. Haviland	Canadian Pacific Steamships Ltd
Fort Providence	28.1.86	N. E. F. Jacotine	P. J. Brewer, A. M. P. Henderson, D. R. F. Earley	R. V. Quennell	Canadian Pacific Steamships Ltd
Fort Resolution	3.3.86	D. O. Tourell	P. N. Ratcliffe, B. Adams, N. Hibberd	T. A. Verling	Canadian Pacific Steamships Ltd
Fort Rouge	4.12.85	K. Elias	D. R. Shipley, C. B. Mawer, C. P. M. Lucas	D. Brown	Canadian Pacific Steamships Ltd
Fort Steele	•				Canadian Pacific Steamships Ltd
Fort Toronto	3.7.85	J. W. Rogers	D. J. Faulkner, M. A. Beviss, I. M. Greig	P. Duffy	Canadian Pacific Steamships Ltd
Fort Victoria	5.9.85	M. Caine	R. Tremlett, D. Cowen, S. Coles	F. Kilpatrick	Canadian Pacific Steamships Ltd
Frederick Russell	11.10.83	P. H. Warne	M. S. Pitman, R. J. Chamberlain		Natural Environment Research Council
Fremantle Express	•	H. K. Chopra	V. K. Gupta, S. Bhasin, R. J. Machado	D. D. Mirajkar	Silver Line Ltd
G. A. Walker	30.1.86	R. B. Jones	R. Stewart, R. Newson, P. Bush	G. Smith	Canadian Pacific Steamships Ltd
Ga Chau	16.7.85	D. J. Creamer	A. J. Gillies, W. Winton	C. M. Crook	Denholm Ship Management Ltd
Galconda	11.3.86	R. Knight	R. J. Gains, D. Lewis, S. White	P. Whyley	P. & O. Lines Ltd
Galpara	27.11.85	C. A. Hatcher	M. G. Charnley, G. Nicholls, G. Penberthy	M. Smith	P. & O. Lines Ltd
Gambada	24.2.86	N. Muhsin	T. H. Goldsmith, A. S. Tennant, S. Armstrong	A. MacGillivray	P. & O. Lines Ltd
Gandara	13.3.86	A. D. G. Bell	N. L. Davis, J. Bird, N. Vause	J. A. Carroll	P. & O. Lines Ltd
Garala	27.11.85	G. Hepple	T. N: Ferguson, A. C. Headdon, D. T. Simpson	M. J. Ellis	P. & O. Lines Ltd
Garbeta	19.7.85	C. G. McKenzie	T. H. Goldsmith, T. Wiltshire, R. Tanguy	M. B. Smith	P. & O. Lines Ltd
Gardline Locator	7.2.83	H. Morrell	R. S. James		Gardline Shipping Ltd
Gardline Tracker	25.6.85	L. M. Wigmore	R. B. Milsom, I. Newsome		Gardline Shipping Ltd
Garinda	10.9.85	J. A. Smeeton	R. M. Gunn, W. D. Phimister, D. R. Lewis	A. R. Watt	P. & O. Lines Ltd
Gas Enterprise	7.3.86	M. D. Salmon	D. L. Culton, N. Hannam, D. Cramp	R. Skinner	B.P. Shipping Ltd
Gazana	14.8.85	P. Malarky	C. S. Card, K. P. Berry, I. T. Blackley	P. Whyley	P. & O. Lines Ltd
Geestbay	25.2.86	D. Boon	K. B. Henry, C. M. Davies, A. J. Gladman	J. Donnan	Geest Line Ltd
Geestland	21.1.86	O. Springett	D. Buckingham, J. B. Hickey, D. Roberts	M. McGregor	Geest Line Ltd
Geestport	12.3.86	G. de Ferry Foster	T. E. Evans, R. J. Hawkins, G. T. Davies	R. E. Byng	Geest Line Ltd
Geeststar	24.10.85	K. M. R. Skinner	K. B. Henry, A. B. Ward, J. Hickey	R. T. Jolliffe	Geest Line Ltd
Gold Varda	30.10.85	R. M. Mitchell	R. Borkowski, S. J. Windle, R. Ross	D. H. Logie	Haverton Shipping Ltd
Hampshire	21.1.86	P. S. Bytheway	S. L. J. Walker, R. Hodgson, F. J. C. Kelly	J. G. Palethorpe	Bibby Line Ltd
Harefield	22.8.85	J. Ridout	M. J. Howorth, J. Wright, K. Obeyesekera	D. J. Busveids	Buries Markes (Ship Management) Ltd
Harlech	•	N. Passey	Uday Bhandarkar, C. Y. S. Nath, G. Vurgese	N. Tripathy	
Harold La Borde	27.2.86	M. M. Reeves	S. Barry, S. N. Harris, S. Hind	T. Elliott	Bibby Line Ltd
Hebridean Isles	•	–. Kennedy	R. Gillespie, D. McKay, J. Macarthur		Caledonian MacBrayne Ltd
Hoegh Duke	13.2.86	A. J. Cheshire	G. C. Stock, D. P. Webb, A. Hillier		Blue Star Ship Management Ltd
Hornchurch	11.12.85	J. J. Etherington	N. B. Manning, D. K. Ontko	M. Rodger	Taiship Co. Ltd
Hupeh	5.2.86	G. A. Drewery	Arun Prasad, O. J. Watson, W. M. Laverick, D. Brady	D. Brady	China Nav. Co. Ltd

I. D. Sinclair	14.3.86	P. K. Dobson	J. E. Whitley, J. R. Onslow, N. Bradshaw	P. D. Hartwell	Canadian Pacific Steamships Ltd
I. T. M. Installer	•	–. Cole	–. Brandt, –. Jordan		I.T.M. (Offshore) Ltd
I. T. M. Venturer	•	S. Ross	D. Mills		I.T.M. (Offshore) Ltd
Ibn Abdoun	5.11.85	P. O. Kean	A. M. Slieth	F. Maclaclainn	United Arab Shipping Co. (S.A.G.)
Ibn Rushd	3.10.84	T. L. Morris	H. F. Taha, A. Salem, D. Oliver	P. J. Macrory	United Arab Shipping Co. (S.A.G.)
Iolair	8.1.86	I. W. Ferguson	M. T. Fisher, S. T. Macdonald, J. D. Cawsey	A. Bellamy	B.P. Shipping Ltd
Irma M	28.1.86	N. W. Thomas	M. R. Banon, V. K. Vijayan, P. E. Harwood	R. A. D'Souza	Fyffes Group Ltd
Isle of Arran	27.2.86	H. Campbell	N. Jones, A. McCrindle, D. Carchrie		Caledonian MacBryne Ltd
Isocardia	23.1.86	F. W. West	S. R. Page, P. E. Davidson, N. Dixon	P. Whiting	Shell Tankers (U.K.) Ltd
Isomeria	11.4.85	B. Wilkinson	J. M. Galbraith, J. G. Peace, A. R. Wynne	M. Collingwood	Shell Tankers (U.K.) Ltd
Iver Champion	17.4.85	G. Milburn	F. H. Heath, A. M. Stobbs	R. P. Billett	Wallem Specialised Management Services Ltd
Ivybank	11.3.86	W. H. Martin	A. Haynes, P. T. Thompson, P. R. N. Maynard	A. L. Dobson	Bank Line Ltd
Jack Wharton	28.1.86	A. J. A. Richards	G. L. Lewis, A. Monteath	.. ..	F.T. Everard Sons Ltd
Jade Bounty	•	L. Soederberg	R. Manantan, G. Balasa, E. Torreflores	T. Vargas	Denholm Ship Management Ltd
Jedforest	27.2.86	V. Cook	E. O. Morris, B. R. Hutchinson, R. Flemington	R. C. Boyle	P. & O. Lines Ltd
John Biscoe	1.5.85	C. R. Elliott	J. M. Jenkins, A. M. T. Reading, R. C. Plumley	G. R. Pinner	British Antartic Survey
Jostelle	25.2.86	T. E. Wilson	J. Barrett, S. Sowerby, K. Corbett	T. Lee	Souter Shipping Ltd
Jura	16.10.85	S. S. Lockhart	B. A. Hall, D. L. Beveridge	.. ..	Department of Agriculture & Fisheries for Scotland
Keta Lagoon	•	V. N. Attuquayefio	T. A. Mensah, C. S. Johnson, V. A. Lartey	S. S. Abrokwa	Black Star Line Ltd
Kildare	22.1.86	R. C. Lister	S. J. Miller, N. J. Blackner, J. W. Gill	P. C. A. Enrico	P. & O. Lines Ltd
Kilmun	3.1.86	J. Wood	R. J. Taylor, G. S. Copley, W. Dawson	.. ..	Lyle Ship Management Ltd
Kingsnorth Fisher	15.7.85	J. J. Smith	A. Tattersall, K. Lockhart, H. McWilliam	S. Price	James Fisher & Sons P.L.C.
Kona	18.2.86	P. E. Shaw	A. D. McLean, J. C. Scott, A. S. Kelly	A. Vertannes	Denholm Ship Management Ltd
Kowloon Bay	14.3.86	R. Dinnie	N. D. R. Copeman-Mitchell, D. MacCorquodale, B. L. Brierley	S. J. Braithwaite	Overseas Containers Ltd
Kowloon Peak	13.8.85	J. Exley	A. P. Tyson, A. Brown, N. Cummins	J. Leahy	Overseas Containers Ltd
La Chacra	15.1.86	J. M. Waller	A. Ridout, D. Butterworth, T. Parry	D. Bevan	Buries Markes (Ship Management) Ltd
La Pampa	11.4.85	E. R. T. Little	G. Thornley, S. Woodhouse, D. A. Lemon	M. J. Tindall	Buries Markes (Ship Management) Ltd
Lackenby	16.12.85	M. B. Bradley	P. A. Carmichael, P. Metcalfe, D. J. Lewington	J. A. Hynes	Ropner Management Ltd
Lakenes	6.2.86	P. Davies	D. J. Ayling, P. A. Neville, I. J. H Grainger	B. Hansen	Jebsens Ship Ltd
Lancasterbrook	•	I. Anderson	C. M. A. Nicholson, P. Bruen		F.T. Everard & Sons Ltd
Lantau Trader	29.1.85	F. Martin	Tsang Hin Kwan, Chow Sai Ming, P. G. Wood	Cheung Hon Hung	Denholm Ship Management (Overseas) Ltd
Leicesterbrook	4.12.85	C. T. Marchant	D. A. Hughes, J. Henderson	.. ..	F. T. Everard & Sons Ltd
Leonia	14.8.85	S. J. Cutler	M. M. MacDonald, J. Grisdale	M. A. O'Brien	Shell Tankers (U.K.) Ltd
Leslie Gault	•	R. Williams	C. Campbell, D. Cowell		Denholm Ship Management Ltd
Lima	1.6.83	B. Wilkinson	D. Hinks	A. Ridley	Shell Tankers (U.K.) Ltd
Lincolnbrook	18.2.86	J. J. Myles	P. J. Dominy, L. C. Pink	.. ..	F. T. Everard & Sons Ltd
Lincolnshire	21.11.85	R. A. F. Edwards	H. D. Woodcock, R. Corlett, S. Kitchen	B. J. Foley	Bibby Line Ltd
Liverpool Bay	12.3.86	J. Cosker	N. E. Gardiner, J. N. Kelleher, I. M. Overton	R. Cause	Overseas Containers Ltd
Lloyd Australia	21.10.85	R. Vinton	R. D. Moore, R. Mackinnon, J. Fressanges	J. Allen	Palm Line Ltd
Lloyd Rio	4.2.86	G. Alston	N. W. Conquest, I. Hillier, D. Wincup		Palm Line Ltd
London Spirit	4.3.86	A. D. Gillie	R. Fullagar, D. S. Wyllie, W. Howarth	I. F. Alexander	London & Overseas Freighters P.L.C.
London Victory	4.12.85	E. G. Humby	M. Webber, S. Tierney, J. W. W. Peters	D. Lawrence	London & Overseas Freighters P.L.C.
Londonbrook	27.9.85	E. Lear	R. M. Thompson, C. G. Buckley, A. J. Sargent		F. T. Everard & Sons Ltd
Lord Kelvin	7.8.84	R. Banton	G. Woodall, C. P. Fazackerley, S. Shaw	I. H. Thomas	Furness Withy (Shipping) Ltd

Selected Ships *(contd)*

Name of Vessel	Last Return Received	Master	Observing Officers	Senior Radio Officer	Owner/Manager
Lucerna	3.2.86	C. D. Croall	N. R. Broomhall, B. J. Garside, P. R. Kaye	P. D. Bonney	Cunard Shipping Services Ltd
Luminence	18.10.85	B. Fern	C. Kitchen		Crescent Shipping Co. Ltd
Luminetta	5.11.85	J. Watson	S. G. Dougal, H. Suttleworth, B. Garside	S. Myland	Cunard Shipping Services Ltd
Maersk Agus	14.2.86	G. Dakin	B. A. Jablonski, P. J. Ward, S. Osborne	D. A. Logan	Maersk Co. Ltd
Maersk Buchan	12.2.86	G. E. Daykin	S. M. Wills, T. S. Lawrence, S. R. Lyons	D. P. Kennedy	Maersk Co. Ltd
Maersk Harrier	19.9.85	H. G. Atkin	F. A. Wales, D. L. Thompson, M. A. Walsh	M. C. Hill	Maersk Co. Ltd
Mairangi Bay	28.2.86	C. R. Short	J. L. Peterson, R. Moxon	M. Hannan	Overseas Containers Ltd
Mairi Everard	16.1.85	J. Twistleton	T. Harrison, P. Bayliss, D. Gilbert, F. McCorlick		F. T. Everard & Sons Ltd
Malayan Reefer	3.12.85	L. R. Bell	R. D. J. Maclean W. A. C. Gill, A. Drury	D. Mealor	Denholm Ship Management Ltd
Manchester Challenge	7.3.86	P. D. Cullen	P. M. Smith, J. R. Monk, K. Jones	P. Hutchinson	Furness Withy (Shipping) Ltd)
Mark C.	•	S. R. Smith	D. Smith, M. Hawkes		Carisbrooke Shipping Ltd
Marsman	•	A. W. Duffin	C. Pool-Gleed, J. R. Jeffers, J. Walker		Rowbotham Tankships Ltd
Matco Avon	7.1.86	M. E. Newall	P. M. Owen, K. H. Calladine, D. Edwards	M. Lambert	Mobil Shipping & Transportation Co.
Matco Clyde	19.4.85	P. Crabtree	I. McCleod, A. Lott	R. B. Hardy	Mobil Shipping & Transportation Co.
Matco Thames	18.2.86	M. A. Sellars	K. C. Trotter, C. J. Graham, J. N. Marnoch	M. Bowler	Mobil Shipping & Transportation Co.
Meadowbank	3.2.86	H. Barber	A. C. Mitchell, W. Mather, W. M. Esler	T. S. C. Kucharski	Bank Line Ltd
Mediterranean Shearwater	4.6.84	A. G. Lacey	K. M. MacDonaid, D. Ilderton, A. Dumbell, P. J. Savory	D. Scott	James Fisher & Sons P.L.C.
Melampus	18.11.85	J. P. Wishart	R. Holness, C. A. M. Tatham, R. F. Taylor	R. . Browne	Ocean Fleets Ltd
Melton Challenger	7.1.86	T. Hunter			Melton Shipping Co. Ltd
Menelaus	18.2.86	H. R. Lawton	M. Bray, R. A. C. Smelt, D. Snell	D. Gunning	Ocean Fleets'Ltd
Merchant Patriot	•	C. R. Thomas	W. I. G. Mair, J. W. Scarisbrick, M. F. Orchard	D. M. Williams	Denholm Ship Management Ltd
Merchant Pioneer	3.3.86	E. Betts	M. E. J. Dunbar, R. J. Kingsnorth, C. J. L. Miller	H. Jefferson	Denholm Ship Management Ltd
Merchant Prelude	•	E. Arciszewski	E. Trebicki, K. Mawnowski	S. Daszuta	Denholm Ship Management Ltd
Merchant Principal	19.12.85	J. R. K. Corrin	A. W. Nolan, M. E. Winter, B. R. Waddell	F. B. Laugharne	Denholm Ship Management Ltd
Mexican Reefer	9.12.85	C. R. Thomas	K. S. MacKechnie, P. W. Fisken, S. S. Green	T. Brennan	Denholm Ship Management Ltd
Monarch	•	A. J. Chalmers	G. Digby, P. O'Sullivan, M. Phillips, G. Broadbridge, G. Chant	D. Vowles	British Telecom International
Montarik	30.10.85	W. F. Jeffrey	A. M. Farooqui, K. A. Khan, S. N. H. Naqui	M. Ahmed	Acomarit (U.K.) Ltd
Moreton Bay	14.1.86	D. C. Blackman	M. K. R. Elliot, A. E. Spencer, K. Worthington	K. J. Gaughan	Overseas Containers Ltd
Naticina	10.3.86	M. D. Hardy	I. Kendall, P. W. Shefford, A. R. Southwood	D. McCallum	Shell Tankers (U.K.) Ltd
Neptune Jasper	9.1.86	F. Xavier	Rethina Kumar, Foo See Tong, Maung Aye	Saw Gaylor	Neptune Orient Lines Ltd
New Zealand Star	•				Blue Star Ship Management Ltd
Nickerie	•	G. P. D. Coleridge	–. Chishti, –. Bunt, –. Bedi	A. Carneiro	Fyffes Group Ltd
Northia	3.2.86	B. B. Pearson	W. J. Dallimore, J. G. Horan, R. W. MacLeod	M. J. Gamble	Shell Tankers (U.K.) Ltd
Nosira Lin	10.12.85	I. Woodier	S. J. Kembery, J. Theaker, N. Howarth	N. McCreary	Bolton Maritime Management Ltd
Nosira Madeleine	2.1.86	J. Parsloe	R. Gibson, A. W. Lewington, P. N. Stott	D. A. C. MacRae	Bolton Maritime Management Ltd
Nosira Sharon	25.6.85	J. Cooper	P. Goodchild, W. G. Daden, S. J. A. Cannon	H. Anderson	Bolton Maritime Management Ltd
Osaka Bay	28.2.86	J. D. Thomson	S. N. Horne, A. P. Baker, S. J. Edge	H. Mathews	Overseas Containers Ltd
Pacific Challenge	21.1.86	R. I. G. Calder	M. Langford, R. J. P. Knowles, P. Ashurst	B. Howarth	Furness Withy (Shipping) Ltd

Pacific Courage	27.1.86	A. Jones	J. P. Archer, H. D. Johnson, D. T. Jewitt	H. Jones	Furness Withy (Shipping) Ltd
Pacific Crane	30.8.85	J. Miller	T. C. R. Riley, R. G. Flynn, G. Dodsworth	A. P. Austen	James Fisher & Sons P.L.C.
Pacific Guardian	31.7.85	P. R. Shaw	J. A. Tollady, W. Marr	S. Haslett	Cable & Wireless P.L.C.
Pacific Patriot	31.1.86	J. A. Williams	B. T. R. Hayes, R. Gibbons, S. Crawford	J. Styles	Furness Withy (Shipping) Ltd
Pacific Peace	15.1.86	J. B. Fowler	G. Woodall, C. R. Jenkins, M. Warrior	I. Wetherill	Furness Withy (Shipping) Ltd
Pacific Prestige	20.1.86	R. Frederick	M. L. Barry, R. Rudd, S. White	E. Streames	Furness Withy (Shipping) Ltd
Pacific Sandpiper	2.1.86	A. G. Lacey	P. J. Savory, G. Bates, G. Himsworth	T. McMahon	James Fisher & Sons P.L.C.
Pacific Swan	28.8.85	I. G. Thompson	E. J. Dumazel, P. A. Booker, E. Griffin	S. Thewlis	James Fisher & Sons P.L.C.
Pacific Teal	27.2.86	J. L. Lundberg	G. Proud, D. Farmer, D. Ilderton	P. G. Golson	James Fisher & Sons P.L.C.
Pacific Universal	28.2.86	T. W. Abbott	M. Murrison, C. Garner, J. Piggott, A. Hardman	K. Holland	Gateway Shipping Ltd
Pegasus	•				Kappa (Maritime) Ltd
Perth	12.8.85	K. Pardiwala	J. S. Dennis	S. Noronha	Blue Star Ship Management Ltd
Petersfield	14.1.86	A. Gardiner	S. A. Ferrier, J. H. Bane, S. Nathan	.. .. ..	Buries Markes Ltd
Pholas	12.11.85	M. Robinson	N. J. Bevan, P. C. Webber, M. J. Bagley	M. S. Gilliland	Coe-Metcalf Shipping Ltd
Pikebank	9.10.85	W. H. Martin	K. P. Mowat, W. Mather, P. J. Gates	G. B. Randall	Bank Line Ltd
Pointsman	2.1.86	D. Smith	D. A. Jackson, J. D. Shelley, T. S. Kenney	A. F. Clifford	Rowbotham Tankships Ltd
Pole Star	3.1.79	N. Morrison	W. Tullock, A. B. Welch	.. .. ..	Northern Lighthouse Board
Pollenger	5.1.84	J. H. B. Weston	T. P. Flower, N. J. Adams, D. M. Sharp	M. Smith	P. & O. Lines Ltd
Pomella	19.11.84	D. J. Sloan	J. G. Tarling, I. R. Jack, A. Rees	J. Mercer	Shell Tankers (U.K.) Ltd
Port Quebec	20.9.85	A. G. Moat	S. W. Turner, P. M. Bell, M. C. Hadley	P. R. Mounsdon	Canadian Pacific Steamships Ltd
Profile	•				Gardline Shipping Ltd
Providence Bay	4.2.86	I. W. Collister	S. H. Pearce, C. Hughes, I. M. Chadney	G. Kemp	Overseas Containers Ltd
Puma	•				P. & O. Lines Ltd
Queen Elizabeth 2	7.11.85	L. R. W. Portet	J. A. Richardson, M. Jevons, S. Trundle	C. Connerett	Cunard Shipping Services Ltd
Rapana	24.2.86	B. Cosgrove	S. R. Holt, R. R. Phillips, G. Hill	R. J. Chapman	Shell Tankers (U.K.) Ltd
Ravenscraig	30.8.85	F. Stuart	A. J. Walgate, D. Wallis, S. Honey	G. Cassidy	Ropner Management Ltd
Rebeka Oma	4.3.85	J. F. Holmes	C. Taylor, R. A. Haigh	N. Smith	Lyle Ship Management Ltd
Reefer Ciku	11.3.86	D. J. Turner	Teo Kah Seng, Er Chor Meng, J. R. Thomas	U. Pe Than	Sembawang Johnson Shipmanagement (Pte) Ltd
Reefer Duku	18.8.83	A. J. Hughes	T. K. Hoon, M. J. Winterbottom, G. W. Bryson	J. H. Gan	Sembawang Johnson Shipmanagement (Pte) Ltd
Reefer Jambu	30.9.85	C. F. Campbell	Ang Beng Kee, J. Potter	P. K. Phua	Sembawang Johnson Shipmanagement (Pte) Ltd
Reefer Manggis	23.1.86	J. S. Laidlaw	Tee Lian Seng, R. J. Smith, Wee Swee Hock	Koh Poh Huat	Sembawang Johnson Shipmanagement (Pte) Ltd
Reefer Nangka	10.9.85	I. Y Batley	Gwee Chwee Kim, M. J. Winterbottom, Chong Chee Meng	Lim Soo Hock	Sembawang Johnson Shipmanagement (Pte) Ltd
Remuera Bay	4.2.86	W. C. Carruthers	B. L. Rolf, D. F. Gates, L. A. Turner	R. B. Redhead	Overseas Containers Ltd
Resolution	13.9.83	D. Howell	F. Mack		Gardline Shipping Ltd
Resolution Bay	4.2.86	D. V. Harradine	G. RR. Matthews, J. M. Dodworth, R. Walker	E. B. Stephenson	Overseas Containers Ltd
Retriever	24.5.83	A. Venables	P. M. Swan, R. C. Phillips, J. Creagh	D. Steel	Cable & Wireless P.L.C.
Reynolds	14.8.85	S. F. Williams	A. P. Rosinger, C. A. Sheffield, N. Bacon	V. Ryan	Bolton Maritime Management Ltd
Richfield	29.1.86	J. Lord	A. A. Ravikumar, M. Holmes, M. S. Brocklesby	C. Premaratne	Buries Markes Ltd
Roachbank	12.3.86	G. Tully	M. W. Ellery, R. S. Brown, S. J. Fair	N. MacAskill	Bank Line Ltd
Rocknes	14.3.83	T. J. Lee	C. W. Milne, G. A. Boobyer, P. Skelton	P. Dredge	Jebsens Ship Management Ltd
Romney	8.10.85	J. Morcom-Harneis	P. Sellers, M. Locke, H. Le Cornu	R. Collins	Blue Star Ship Management Ltd
Rollnes	19.11.85	D. Clements	A. McClymont, C. Wilton	T. Crosby	Jebsens Ship Management Ltd
Royal Princess	25.2.85	J. R. Young	N. P. Jenkins, J. A. Smith, J. A. Croft	W. J. Smith	P. & O. Lines Ltd

Selected Ships *(contd)*

Name of Vessel	Last Return Received	Master	Observing Officers	Senior Radio Officer	Owner/Manager
Rubens	18.12.85	J. Parsloe	R. K. Harding, C. Cooke, J. Mitchell	K. A. Ellison	Bolton Maritime Management Ltd
Sachem	11.10.85	G. Allely	R. Lamerton, A. J. Anderton, S. Woodward	G. A. Evans	Mobil Shipping Transportation Co.
Sagacity	23.11.84	W. M. Shireff	H. R. Beisly, R. Volante		F. T. Everard & Sons Ltd
St Helena	15.1.86	R. Wyatt	R. I. J. Young, D. N. R. Roberts, S. B. Quinn	N. M. Abbott	Curnow Shipping Ltd
St Nicholas	19.11.85		H. Ramsey	L. M. Footring	Sealink (U.K.) Ltd
Salmonpool	9.10.85	C. B. Tingle	P. Wylie, A. S. Reed, P. Bates	R. Stevens	Ropner Management Ltd
Santa Marta	24.2.84	I. H. Pringle		R. F. Minon	Denholm Ship Management Ltd
Santos Star	13.11.85	D. J. Robinson	G. R. Harrison, I. M. Freeman, G. W. Weaver	H. Segrave	Blue Star Ship Management Ltd
Sapele	17.12.85	W. J. Byard	B. L. Davies, M. G. Brown, L. M. Ramsay	R. Stevens	Ocean Fleets Ltd
Scamper Universal	28.2.86	I. Farquharson	I. Simpson, M. Murrison, I. Claxton	D. Ingrey	Gateway Shipping Ltd
Scotia	3.3.82	G. M. Coull	J. E. Bannister, W. H. Laws, D. Dixon	J. Steven	Department of Agriculture & Fisheries for Scotland
Scottish Eagle	11.11.85	M. D. Whiteley	P. D. Hall	J. Duckworth	Cayzer, Irvine Shipping Ltd
Scottish Star	14.1.86	C. I. Mackillop	P. A. Duggie, G. J. Rawding, A. J. Delaney	N. MacCaskill	Blue Star Ship Management Ltd
Sea Princess	2.1.86	J. Chester	A. J. Hair	C. Booth	P. & O. Lines Ltd
Seaboard Illustrious	6.11.84	J. Gillies	R. Crawford, A. F. Vincent, A. G. Maclean	C. Thompson	Seaboard Offshore Ltd
Seaboard Implacable	25.2.86	D. Morrison	F. W. Wilson, D. J. Maclellan		Seaboard Offshore Ltd
Seaboard Invincible	25.2.86	A. F. Vincent			Seaboard Offshore Ltd
Seaforth Clansman	9.8.83	J. Ritchie		W. Hammerton	Seaforth Maritime Ltd
Seagair	3.2.86	M. P. Easton	I. G. Chadwick, D. R. Chapman	A. R. Gurney	B.P. Shipping Ltd
Sekondi	3.1.86	J. McGechen	C. M. Leather, J. L. Wilson, C. B. Noon	J. J. Crotty	Ocean Fleets Ltd
Semac I	28.8.80	J. Dobeson			Semac Services
Serenia	28.10.85	D. Spargo	R. J. Mills, A. W. Moffatt, D. R. Lake, N. G. Whiteoak	G. A. Sutherland	Shell Tankers (U.K.) Ltd
Serenity	12.9.84	R. Hart	H. R. Beisly, M. M. Boyle		F. T. Everard & Sons Ltd
Shell Explorer	14.2.86	D. Kain	M. R. Brown, J. M. G. Arthur, D. T. Lakeman		Shell U. K. Ltd
Shetland Service	20.1.86	J. B. Crick	N. Sheard, J. Drury		Offshore Marine Ltd
Sincerity	12.12.84	B. Mumby	K. Hodson		F. T. Everard & Sons Ltd
Singularity	31.10.85	M. W. Salsbury	C. A. Bates, R. G. Wright-Turner		F. T. Everard & Sons Ltd
Sir Alexander Glen	12.3.86	F. A. M. B. Davies	A. K. Maltby, T. M. Moseley, D. C. Wyatt	S. D. Black	Hudson S. S. Co. Ltd
Sir Walter Raleigh	•	M. Kitchenside	C. Mahoney, D. Cross, B. Wood	D. Legge	J. Marr & Son Ltd
Sky Clipper	25.6.85	C. J. B. Trinick	M. C. Desa, K. Richardson, Ajay Pal	K. K. Pandit	Fyffes Group Ltd
Snow Crystal	3.1.86	W. G. Lockie	M. J. Pinder, A. Oxley, T. Mason	J. Baldwin	Wallem Specialised Management Services Ltd
Snow Flower	11.12.85	T. Spencer	S. G. Fraser, P. L. Sherry, J. H. Clamp	K. Boyle	Wallem Specialised Management Services Ltd
Sokoto	27.8.85	A. J. Dyne	M. Tolson, M. S. Middlebrook, G. C. Vickery	R. F. Seward	Ocean Fleets Ltd
Southland Star	23.1.86	P. W. Hutchinson	E. A. White, J. W. Tolman, N. Wright	A. Begg	Blue Star Ship Management Ltd
Speciality	27.2.85	C. T. Marchant	K. Lindsay, S. K. Campell, S. Richardson		F. T. Everard & Sons Ltd
Speedster Universal	16.9.85	A. J. Fenley	A. E. Jackson, I. Cuthbertson, J. D. Price	W. Latus	Cayzer, Irvin Shipping Ltd
Stability	9.12.85	R. Bilton	H. R. Beisly, M. M. Boyle, M. R. Irwin		F. T. Everard & Sons Ltd

Staffordshire	14.1.86	M. R. Nisbet	J. E. Docker, G. N. Penry, B. J. King	W. R. Ormrod	Bibby Line Ltd
Stainless Spray	•	I. P. Odd	A. J. F. West, B. Stevenson, A. Fennymore	P. O'Connor	Turnbull Scott Management Ltd
Star Everace	12.12.85	I. C. Graham	S. Barry, R. T. Berry, J. K. Robson	D. Tackie-Komme	Marine Navigation Co Ltd
Star World	26.11.85	S. R. Kenington	W. K. Ng. R. M. Patmore, A. K. Babbar	T. Cameiro	Northern Marine Management Ltd
Stena Britannica	•	C. J. C. Harker	A. S. Evitt, J. Dyson, G. Whittaker	K. MacBrayne	Northern Marine Management Ltd
Stena Carrier	•	B. Le Pine Williams	C. Atterton, G. Gardiner, J. Dyson	R. Clayton	Northern Marine Management Ltd
Stena Oceanica	30.12.85	F. R. N. Best	D. V. Lloyd, D. Cuthill, K. P. Berry	J. Marquess	
Stolt Sceptre	3.1.86	K. Lewis	A. J. Hepworth, J. R. Parfitt	M. S. Aldridge	Wallem Specialised Management Services Ltd
Stolt Stane	15.1.86	G. MacIver	M. P. Sanders, P. R. Anderson, G. Babbage, F. Perrin	M. J. Russell	Wallem Specialised Management Services Ltd
Stolt Templar	13.2.86	A. F. Ainscough	A. H. Roberts, M. A. McMahon	R. Bradsell	Wallem Specialised Management Services Ltd
Strider Juno	11.10.85	E. V. Judge	A. M. Naragatan, J. R. Vega, C. O. Ferraren	F. D. Mehta	Sea Containers Chartering Ltd
Suilven	4.12.85	A. J. Morrison	M. Macleod, S. M. Ross, D. A. Gunn	J. S. Mathers	Caledonian MacBrayne Ltd
Sulisker	26.3.85	D. K. Dickson	D. Temple, P. Shenton		Ministry of Agriculture Fisheries & Food
Summity	28.11.85	R. Bilton	S. C. Richardson, P. J. Denmead	C. Sutherland	F. T. Everard & Sons Ltd
Sun Suma	7.11.85	J. C. Berry	K. B. Bennett, R. W. A. Brough, D. A. F. Rosairo		Buries Markes (Ship Management) Ltd
Superiority	6.11.85	J. A. Moir	H. R. Beisley, M. Bailey		F. T. Everard & Sons Ltd
Tankerman	18.12.85	R. G. Burnet	D. A. Jackson, C. R. Ford, S. J. Bagshaw	C. D. Rumbles	Rowbotham Tankships Ltd
Tectus	13.3.86	B. Morrey	J. D. Smith, A. Leach J. H. Evans	W. N. Greene	Shell Tankers (U.K.) Ltd
Telnes	•	V. Taylor	M. Bailey	J. O'Driscoll	Jebsens Ship Management Ltd
Tenchbank	23.9.85	G. J. Tully	M. R. Pullen, A. G. Spencer, A. Sawyers	M. Toogood	Bank Line Ltd
Texaco Westminster	1.10.85	A. W. Reeves	D. S. Sadler, M. T. Hutton, J. B. Anderson	P. Birt	Texaco Overseas Tankships Ltd
Texaco Windsor	•	G. Coker	M. Ryder, P. Hughes	P. Flynn	
Toana Papua	20.8.85	I. M. Maden	J. C. Osman, S. J. Fair	J. McDonnell	Bank Line Ltd
Tog Mor	•	J. Suddes	G. Patience		Howard Doris Marine Services Ltd
Toki Arrow	4.12.85	S. Kocheria	C. H. Au, C. H. C. Knight, G. B. Thomson	H. H. Wong	
Tokyo Bay	22.1.86	R. P. Royan	L. H. M. Johnson, L. J. Fletcher, J. P. Meade	A. D. Hutchinson	Overseas Containers Ltd
Tolaga Bay	24.2.86	J. Cox	W. M. Winter, R. A. Kenchington, R. J. Baldock	C. Thornally	Overseas Containers Ltd
Tor Bay	24.12.85	A. J. Palmer	A. M. Leech, S. Barraclough, D. P. Worsnop	D. S. Flemington	Overseas Containers Ltd
Tor Caledonia	12.7.85	A. I. Scott	G. Lockwood	G. Mackecknie	Denholm Ship Management Ltd
Tribulus	11.3.86	D. Still	N. Dixon, T. D. Corson, M. H. Pryce	C. T. Delahunty	Shell Tankers (U.K.) Ltd
Tricula	21.10.85	R. M. Abbott	C. P. Gallagher, M. D. Jeeves, P. Marsland	A. B. Stewart	Shell Tankers (U.K.) Ltd
Trinidad & Tobago	11.3.86	J. S. Gavin	F. J. C. Kelly, R. J. Court, A. G. Smith	P. Stanway	Bibby Line Ltd
Troll Maple	12.2.86	D. J. Fernandes	J. B. Parakh, R. Khanna, A. Srivastava	J. M. Fernandes	Escombe McGrath & Co. Ltd
Troll Viking	11.3.86	P. M. Abraham	V. S. Anand, S. Palat, H. P. Kulkarni	F. J. Irani	Escombe McGrath Co. Ltd
Troutbank	13.9.85	B. J. Peterson	J. Davies, E. M. Pallister, P. B. Moulds, V. Mitchell	I. Shaw	Bank Line Ltd
Valdivia	13.2.86	H. M. J. Churchill	G. D. S. Hope, J. D. Dickinson, A. W. Stevens	S. C. Langlois	Harrison (Clyde) Ltd
Vegaman	4.2.86	W. Alexander	H. J. Pearce, S. A. C. Jones, P. J. Wilkinson	D. R. Legge	Rowbotham Tankships Ltd
Vendee	28.10.85	H. C. Hynard	P. Tarrant, C. A. Baker, A. W. Winchester	R. Goring	P. & O. Lines Ltd
Venturous	•	D. B. Davies	N. Davies, S. McDonald		Swansea University
Vic Bilh	24.2.86	M. J. Searle	J. G. Dixon, S. F. Jones, M. Mansbridge	S. W. Taylor	B. P. Shipping Ltd
Victoria Peak	27.2.86	W. D. Clark	C. D. Pursey, R. J. Purdie, I. F. Fair	D. C. Ogden	Seahorse Ship Management Ltd
Vigilant	14.3.86	D. L. Rattray	I. McKendrick, D. L. Beveridge, G. D. Owen, J. Coyle		Department of Agriculture & Fisheries for Scotland

Selected Ships *(contd)*

Name of Vessel	Last Return Received	Master	Observing Officers	Senior Radio Officer	Owner/Manager
Vivian M	18.2.86	R. L. Westwater	M. A. Rahiman, M. J. Lobo, W. J. Harwood	M. Thatte	Fyffes Group Ltd
Vosges	17.12.85	C. Prescott	D. P. Symons, S. N. Monks, N. C. Davidson	A. Crosland	P. & O. Lines Ltd
W. A. Mather	14.2.86	E. C. Metham	D. J. Allen, T. M. Graham, J. R. McCartney	J. Beckett	Canadian Pacific Steamships Ltd
W. M. Neal	13.2.86	P. Atkinson	G. J. Knox, R. L. Smith	T. D. Smith	Canadian Pacific Steamships Ltd
Washington	12.11.85	G. Pirie	L. J. Gibb, A. P. M. Fraser, A. H. Worton	I. C. Petrie	Stephenson Clarke Shipping Ltd
Wellington Star	12.2.86	G. H. Stubbings	R. J. Fullwood, B. P. Stockdale, M. N. Mace		Blue Star Ship Management Ltd
Westra	6.1.83	T. Henderson	D. L. Beveridge, R. J. Sheldon		Department of Agriculture and Fisheries for Scotland
Wheelsman	17.12.85	M. J. Charlesworth	P. C. Williams, J. P. Evanson	C. Waddicor	Rowbotham Tankships Ltd
Willowbank	6.1.86	P. Simpson	K. P. Mowat, D. E. Ginder, M. A. Mackenzie	G. B. Randall	Bank Line Ltd
Wilmington	14.3.85	D. Macleod	M. B. Wdowikowski, D. D. Matheson	H. Chesters	Stephenson Clarke Shipping Ltd
Yaqui	*	K. Stutt	J. Townsend, K. Jones, J. D. Hdez	C. Dunwoody	Cardiff Ship Management Ltd
Yinka Folawiyo	13.11.85	I. D. Bease	G. J. Andrews, M. R. Davies	I. N. Nolan	Ocean Fleets Ltd

Supplementary Ships

Name of Vessel	Last Return Received	Master	Observing Officers	Senior Radio Officer	Owner/Manager
Arctic Corsair	1.10.85	B. C. Wharam		A. Spence	Boyd Line Ltd
Earl Godwin	8.1.86	J. O. Attwood	P. A. Lloyd		Sealink (U.K.) Ltd
Earl Granville	30.10.84	M. G. Mills	B. Hayball, P. Goode, P. Harris	P. Jordan	Sealink (U. K.) Ltd
Oil Hustler	*	N. Brown	L. Elms		Ocean Inchcape Ltd
Viking Trader	24.10.85	W. J. C. Clarke	J. Leaver, T. Seeman	B. C. Bull	Townsend Car Ferries Ltd
Viking Valiant	18.2.86	A. F. Bonehill	J. Nixon	G. I. Petrie	Townsend Car Ferries Ltd

'Marid' Ships

The following is a list of ships recruited for the observing and reporting of sea temperatures from coastal waters of Great Britain. Masters are required to point out any errors or omissions in the lists.

NAME OF VESSEL	MASTER	OWNER/MANAGER
Aldrington	R. Francis	Stephenson Clarke Shipping Ltd
Arco Tees	B. Farmer	A. R. C. (Marine) Ltd
Arco Thames	L. Webb	A. R. C. (Marine) Ltd
Ashington	P. R. Thompson	Stephenson Clarke Shipping Ltd
Authenticity	G. Burman	F. T. Everard & Sons Ltd
B. P. Warrior	–. Rait	B. P. Oil Ltd
Barra Head	D. MacDonald	Christian Salvesen (Shipping) Ltd
Beacon Point	C. F. Irvine	Christian Salvesen (Shipping) Ltd
Bowqueen	S. Isaac	British Dredging Ltd
Castle Point	J. A. Pretswell	Christian Salvesen (Shipping) Ltd
Claymore	C. Billimore	Caledonian MacBrayne Ltd
Clymene	E. A. Jones	Furness Withy (Shipping) Ltd
Columba	R. Hutcheson	Caledonian MacBrayne Ltd
Graigalhan	D. J. Flynn	J. & A. Gardner Ltd
Crusader Point	F. Davies	Hudson S. S. Co. Ltd
Dolphin Point	P. T. Keane	Christian Salvesen (Shipping) Ltd
Eastgate	A. P. Shenton	Rowbotham Tankships Ltd
Emerald	A. Bourn	Stephenson Clarke Shipping Ltd
Esso Clyde	D. M. Campell	Esso Petroleum Co. Ltd
Esso Fawley	R. W. Noakes	Esso Petroleum Co. Ltd
Esso Mersey	J. H. Smith	Esso Petroleum Co. Ltd
Esso Milford Haven	P. O'Connor	Esso Petroleum Co. Ltd
Esso Tenby	N. Powell	Esso Petroleum Co. Ltd
Fort Point	R. B. Dickson	Christian Salvesen (Shipping) Ltd
Frederick M.	G. Cattanach	Coe-Metcalf Shipping Ltd
Garrison Point	L. G. Relton	Hudson S. S. Co. Ltd
Green Rock	A. D. Hall	Garth Shipping Co. Ltd
Harting	J. M. McCuaig	Stephenson Clarke Shipping Ltd
Helmsman	A. McKinnon	Rowbotham Tankships Ltd
Irishgate	D. Bee	Rowbotham Tankships Ltd
Jubilence	P. Leeman	Crescent Shipping Co. Ltd
Kindrence	P. Whiting	Crescent Shipping Co. Ltd
La Colina	P. Clapham	Buries Markes (Ship Management) Ltd
La Hacienda	J. Frisby	Buries Markes (Ship Management) Ltd
La Predera	A. P. Hill	Buries Markes (Ship Management) Ltd
Landguard Point	W. Worsley	Hudson S. S. Co. Ltd
Malling	R. Clifford	Stephenson Clarke Shipping Ltd
Melrose	G. H. McLaren	George Gibson & Co. Ltd
Militence	G. Herbert	Crescent Shipping Co Ltd
Norna	I. Pollock	Dept. of Agriculture & Fisheries for Scotland
Northgate	B. Wilson	Rowbotham Tankships Ltd
Oilman	K. MacDonald	Rowbotham Tankships Ltd
Orionman	M. O'Brien	Rowbotham Tankships Ltd
Piquence	A. Affleck	Crescent Shipping Co. Ltd
Rogate	D. Patrickson	Stephenson Clarke Shipping Ltd
Rora Head	M. McGee	Christian Salvesen (Shipping) Ltd
St Clair	J. Cowie	P. & O. Lines Ltd
St Columba	L. R. Evans	Sealink (U. K.) Ltd
Shell Craftsman	R. Astridge	Shell U.K. Oil Ltd
Shell Trader	D. McLinden	Shell U.K. Oil Ltd
Storrington	O. T. Stephenson	Stephenson Clarke Shipping Ltd
Sumburgh Head	J. B. Kerr	Christian Salvesen (Shipping) Ltd
Vibrence	I. J. Jones	Crescent Shipping Co. Ltd
Warden Point	R. Moffatt	Hudson S. S. Co. Ltd
Westerence	T. G. Uden	Crescent Shipping Co. Ltd

Light-vessels

Name of Vessel	Master
Channel	G. Kozak, A. Fowler
Dowsing	J. F. Bearnish, J. Akester
Humber	P. F. J. Hollowed, P. L. Wilkins
Newarp	W. F. Dalby, S. F. Goose
Royal Sovereign (Lt Tower)	G. Hartill, V. S. Pearce
St Gowan	R. J. Owen, W. E. Jones
Seven Stones	R. T. Davies, F. D. Gayton
Smith Knoll	G. E. West, W. Sheaf

Oil Rigs and Platforms

Name of Rig or Platform	Owners/Operators
Aladdin	Jebsens Offshore Drilling Ltd
Ali Baba	Jebsens Offshore Drilling Ltd
Beatrice A.	Britoil P.L.C.
Ben Ocean Lancer	Ben Line Steamers Ltd
Benlomond	Atlantic Drilling Co. Ltd
Benvrackie	Atlantic Drilling Co. Ltd
Beryl B.	Mobil North Sea Ltd
Bidford Dolphin	Blandford Drilling Co. Ltd
Charles Rowan	Rowan Drilling U.K. Ltd
Dixilyn Field 96	Wood Offshore Ltd
Dixilyn Field 97	Wood Offshore Ltd
Dyvi Omega	Dyvi Offshore Ltd
Glomar Biscay II	Shell U.K. Exploration & Production Ltd
Heather A.	Unionoil Co. of G.B. Ltd
M. G. Hulme Jnr.	Reading & Bates Ltd
Montrose A.	Amoco (U.K.) Exploration Co. Ltd
Ninian Central	Chevron Petroleum (U.K.) Ltd
Santa Fe 135	Santa Fe (U.K.) Ltd
Sinbad Saxon	Jebsens Offshore Drilling Ltd
Thistle A.	Britoil P.L.C.
Transworld 58	Hamilton Brothers Oil & Gas Ltd
Treasure Finder	Shell U.K. Exploration & Production Ltd
Western Pacesetter I	Western Oceanic (U.K.) Ltd
Western Pacesetter II	Western Oceanic (U.K.) Ltd

BRITISH COMMONWEALTH

The following lists give the names of Selected and Supplementary Ships and the number of Auxiliary Ships where known (i.e., those which only report in 'sparse areas'), which voluntarily co-operate with meteorological services of the British Commonwealth
Information for these lists is required by 31 March each year. Information for the January corrective lists is required by 30 September each year.

AUSTRALIA (Information dated 17.2.86)

NAME OF VESSEL	OWNER/MANAGER
Abel Tasman	T. T. Line Tasmania
Al Khaleej	Kuwait Shipping Co.
Al Qurain	Livestock Transport & Trading Co.
Al Shuwaikh	Livestock Transport & Trading Co.
Al Yassrah	Rural Exporters & Traders Pty Ltd
Anna Bakke	Knutsen Line
Anro Australia	Australian National Line
Arafura	Overseas Containers Australia Pty Ltd
Ariake	Overseas Containers Australia Pty Ltd
Australia Star	Blue Star Line
Australian Emblem	Australian National Line
Australian Escort	Australian National Line
Australian Exporter	Australian National Line
Australian Progress	Australian National Line
Australian Prospector	Australian National Line
Australian Purpose	Australian National Line
Australian Trader	Australian National Line
Australian Venture	Australian National Line
Barber Taif	Wilh. Wilhelmson
Bass Trader	Australian National Line
B.P. Achiever	B.P. Australia Ltd
B.P. Endeavour	B.P. Tanker Co. Ltd
B.P. Enterprise	B.P. Tankers (Aust.) Pty Ltd
Brisbane Trader	Australian National Line
Buffalo Express	Vroon B. V. Breskens
Cape Don	Department of Transport
Cape Hawke	Australian National Line
Cape Moreton	Department of Transport
Cape Pillar	Department of Transport
Cockatoo Creek	Lombardo Marine Group Pty Ltd
Coral Chief	China Navigation Co. Ltd
Danny F.	Rachid Fares Enterprise Pty Ltd
Eastern Enterprise	Howard Smith Ltd
Eigamoiya	Nauru Local Govt Council
Eigigu	Nauru Pacific Line
El Cordero	Cugado Shipping Co.
El Redil	Livestock Carriers S.p.A. Bari
Energy Searcher	Aureole Offshore Drilling
Eugene McDermott II	Geophysical Service International
Fernanda F.	Rachid Fares Enterprises Pty Line
Flinders Range	Australian National Line
Fua Kavenga	Pacific Forum Line
Howard Smith	Howard Smith Ltd
Icebird	Gunther Schulz
Ilongo	Weeke Ship Hong Kong Ltd
Irene Greenwood	State Shipping Service
Iron Arnhem	Broken Hill Pty Co. Ltd
Iron Capricorn	Broken Hill Pty Co. Ltd
Iron Carpentaria	Broken Hill Pty Co. Ltd
Iron Kestrel	Broken Hill Pty Co. Ltd
Iron Kirby	Broken Hill Pty Co. Ltd
Iron Prince	Broken Hill Pty Co. Ltd
Iron Shortland	Broken Hill Pty Co. Ltd
Iron Sirius	Broken Hill Pty Co. Ltd
Iron Somersby	Broken Hill Pty Co. Ltd
Iron Spencer	Broken Hill Pty Co. Ltd
Iron Sturt	Broken Hill Pty Co. Ltd
Iron Whyalla	Broken Hill Pty Co. Ltd
Island Gas	Boral Ltd
Koolinda	State Shipping Service
Kowulka	Colonial Sugar Refinery Ltd
Lake Barrine	Australian National Line
Leaders Creek	Lombardo Group Pty Ltd

Australia *(contd)*

NAME OF VESSEL	OWNER/MANAGER
Lindesay Clark	Howard Smith Ltd
Lysaght Endeavour	Australian National Line
Mawashi Al-Gassem	Saudi Livestock & Trading Co.
Melbourne Trader	Australian National Line
Miss Rankin	Lombardo Group Pty Ltd
Mobil Flinders	Mobil Oil Australia Ltd
Mukairish Althani	Mobil Oil Australia Ltd
Neptune Seginus	Hetherington Westfarmers
Nimos	China Navigation Co. Ltd
Nivosa	Shell Company of Australia Ltd
Oceanic Crest	Japan Line Ltd
Oriana	P. & O. Lines Ltd
Ormiston	Colonial Sugar Refinery Ltd
Orv Franklin	C.S.I.R.O.
Pathfinder II	Panore Shipping Co.
Pilbara	State Shipping Co.
Prospector II	Panore Shipping Co.
Papuan Chief	China Navigation Co. Ltd
Ragna Bakke	Knutsen Line
Regional Endeavour	Seltrust Mining Corp, Pty Ltd
Rig Seismic	Bureau of Mineral Resources
Riquita	Mr I. Smith
River Boyne	Australian National Line
River Embley	Australian National Line
River Torrens	Australian National Line
Sahiwal Express	Dens Ocean Pty Ltd
Seaway Hobart	Union S.S. Co. Australia Ltd
Seaway Melbourne	Union S.S. Co. Australia Ltd
Seola	C.S.I.R.O.
Siba Queen	Italcattle S.p.A., Bari
Sid McGrath	John Burke Shipping Pty Ltd
Tilbata Creek	Lombardo Marine Group Pty Ltd
TNT Altrans	T.N.T. Bulkships Ltd
TNT Capricornia	T.N.T. Bulkships Ltd
TNT Carpentaria	T.N.T. Bulkships Ltd
Tourcoing	Scan Austral Asiatic Shipping Line
Troubridge	S. A. State Government
Uniceb	Livestock Carriers S.p.A., Bari

CANADA (Information dated 1.1.86)

NAME OF VESSEL	OWNER/MANAGER
Ad Astra	Barber Ship Management Ltd
Advent	Government of Canada
Alberni Dawn	Man Cheung Services Ltd
Alert	Government of Canada
Arctic	Canarctic Shipping Co. Ltd
Atlantic Wing	ACT Maritime Co. Ltd
Baffin	Government of Canada
Bayfield	Government of Canada
Bergen Thistle	Jardine Ship Management Co. Ltd
Bibi	Sir Wm Reardon Smith & Sons Ltd
Bluenose	Canadian National (Maritime)
Bow Drill I	Huskey/Bow Valley Offshore Drilling Ltd
Bow Drill II	Huskey/Bow Valley Offshore Drilling Ltd
Bow Drill III	Huskey/Bow Valley Offshore Drilling Ltd
Brierfield	Buries Marks (Ship Management) Ltd
Camsell	Government of Canada
Canadian Ace	Montreal Shipping Ltd
Cape Roger	Government of Canada
Chebucto	Government of Canada
Chennai Nermai	South India Shipping Corp. Ltd

Canada *(contd)*

NAME OF VESSEL	OWNER/MANAGER
Citadel Hill	Barber Ship Management Ltd
Coastal Canada	Greater Sarnia Investment Corporation
Crystal Reed	Korea Shipping Corporation
Cygnus	Government of Canada
Dawson	Government of Canada
Des Groseillers	Government of Canada
Dilkara	Ellerman City Liners Ltd
Eastern Maid	Indo-China S. N. Co. Ltd
Egda	Indo-China S. N. Co. Ltd
Fjord Thistle	Indo-China S. N. Co. Ltd
Fort Calgary	Canadian Pacific Steamships Ltd
Fort Kamloops	Canadian Pacific Steamships Ltd
Fort Nanaimo	Canadian Pacific Steamships Ltd
Fort Nelson	Canadian Pacific Steamships Ltd
Fort Yale	Canadian Pacific Steamships Ltd
F. P. Clipper	East Asiatic Co. Ltd
Friendship	Friendship Carrier Incorporated
Fuhwo Venture	Indo-China S.N. Co. Ltd
G. B. Reed	Government of Canada
George E. Darby	Government of Canada
Glomar Labrador I	Home Oil Co. Ltd
Great Pearl	World-wide Shipping Agency Ltd
Great Prize	Wak Tung Shipping Co. Ltd
Grena	Jardine Ship Management Co. Ltd
Grenfell	Government of Canada
Gulf Beaufort	Gulf Canada Co. Ltd
Hudson	Government of Canada
Irving Canada	Kent Lines Ltd
Irving Eskimo	Kent Lines Ltd
Irving Forest	Kent Lines Ltd
Irving Ocean	Kent Lines Ltd
Island Princess	P. & O. Lines Ltd
J. C. Phillips	Societe Socatti
J. E. Bernier	Government of Canada
Jackman	Government of Canada
James Sinclair	Logistic Navigation Co. Ltd
Jean Paquin	Government of Canada
John A. Macdonald	Government of Canada
John Cabot	Government of Canada
John P. Tulley	Mobil Oil (Canada) Ltd
John Shaw	Jardine Ship Management
Kemano	Sofati Socatti
L. Rochette	Government of Canada
Labrador	Shell Oil (Marine) Co. Ltd
Lakeshell	Government of Canada
Leonard J. Cowley	Government of Canada
Limnos	Navmar Corporation
Louis M. Lauzier	Government of Canada
Louis S. St Laurent	Government of Canada
Louisburg	Logistic Navigation Co. Ltd
Lucien Paquin	Indo-China S. N. Co. Ltd
Malahat	Patt Manfield Co. Ltd
Marigold I	
Mary Hichens	Government of Canada
Maxwell	Government of Canada
Montcalm	Government of Canada
Nahidik	Government of Canada
Namao	Government of Canada
Nandu Arrow	Jardine Ship Management Co. Ltd
New Zealand Alliance	Shipping Corporation of N. Z.
Nordkap	Norden Steamship Co. Ltd
Nordkyn	Norden Steamship Co. Ltd
Nordpol	Norden Steamship Co. Ltd
Norman Mcleod Rogers	Government of Canada
Northern Shell	Shell Oil (Canada) Ltd
Pacific Princess	P. & O. Lines Ltd
Pandora II	Government of Canada
Parizeau	Government of Canada
Pierre Radisson	Government of Canada
Polaris V	Carino Co. Ltd
Port Vancouver	Canadian Pacific Steamships Ltd

Canada *(contd)*

NAME OF VESSEL	OWNER/MANAGER
Princess of Acadia	Canadian National (Marine)
Queen of Prince Rupert	British Columbia Ferries
Queen of the North	British Columbia Ferries
Raven Arrow	Indo-China S. N. Co. Ltd
Rimba Maranti	Malaysian International Shipping Corp.
Rowan Gorilla I	Rowan Companies Ltd
Rowan Gorilla III	Rowan Companies Ltd
Rowan Juneau	Mobil Oil (Canada) Ltd
Sedco 706	Huskey/Bow Valley Offshore Drilling Ltd
Sedco 709	Mobil Oil (Canada) Ltd
Sedco 710	Petro Canada
Shanta Rohan	Hede Navigation Co. Ltd
Simon Fraser	Government of Canada
Sir Humphrey Gilbert	Government of Canada
Sir James Douglas	Government of Canada
Sir John Franklin	Government of Canada
Sir William Alexander	Government of Canada
Skeena	Reardon Smith Lines Ltd
Star Evervin	Man Cheung Ywen Services Ltd
Star Magnate	Marine Navigation co. Ltd
Sun Princess	P. & O. Lines Ltd
Sun Rokko	Gearbulk Shipping Agency Ltd
Star Sulu	Vinta Maritime Co. Ltd
T. Akasaka	Canadian Pacific Steamships Ltd
Tanu	Government of Canada
Thomas Carleton	Government of Canada
Thor I	Thor Dahl Lines
Thorscape	Thor Dahl Lines
Trudy	Souter Shipping Ltd
Tupper	Government of Canada
United Drive	International Shipping Agency Ltd
Vinland	Petro Canada
Western Valley	Reardon Smith Lines Ltd
West Venture	Mobil Oil (Canada) Ltd
Wilfred Templeman	Government of Canada
Wolfe	Government of Canada
World Jade	World-wide Shipping Agency Ltd
Zapata Scotian	Mobil Oil (Canada Ltd)

Auxiliary Ships:

Canada has 285 ocean-going Auxiliary Ships and 106 Auxiliary Ships operating on the Great Lakes and Inland Waters.

HONG KONG (Information dated 17.3.86)

NAME OF VESSEL	OWNER/MANAGER
Selected Ships:	
Asian Jade	Swire Shipping (Agencies) Ltd
Asian Pearl	Swire Shipping (Agencies) Ltd
Australia	Denholm Ship Management Ltd
Barber Perseus	Barber Wilhelmsen Agencies Ltd
Barber Tonsberg	Barber Wilhelmsen Agencies Ltd
Boonkrong II	Chin Seng Hong Ltd
Chengtu	Swire Shipping (Agencies) Ltd
Coral Princess	Swire Shipping (Agencies) Ltd
Halldor	Thoreson & Co. Ltd
Hawk Arrow	Indo-China S. N. Co. (H.K.) Ltd
Hong Kong Container	Orient Overseas Management and Finance Ltd
Kweilin	Swire Shipping (Agencies) Ltd
Maersk Tempo	Maersk Line (H.K.) Ltd
Mah III	Chin Seng Hong Ltd
Maritime Noble	International Maritime Carriers Ltd
Oriental Ambassador	Orient Overseas Management and Finance Ltd
Oriental Chief	Orient Overseas Management and Finance Ltd

Hong Kong *(contd)*

NAME OF VESSEL	OWNER
Oriental Expert	Island Navigation Corp. Ltd
Oriental Freedom	Orient Overseas Management and Finance Ltd
Osprey Arrow	Indo-China S. N. Co. (H.K.) Ltd
Pearl of Scandinavia	Pearl Cruises Catering (H.K.) Ltd
Sirichai Bulakul	Chin Seng Hong Ltd
Strathconon	Swire Shipping (Agencies) Ltd
Tokyo Bridge	Orient Overseas Management and Finance Ltd
Willine Taro	Barber Ship Management Ltd
Supplementary Ships:	
Acacia	Mercury Shipping Co. Ltd
Archery	Man Cheung Yuen Services Ltd
Barber Tampa	Barber Wilhelmsen Agencies Ltd
Beau Success	World-wide Shipping Agency Ltd
Bunga Kantan	Mak Shui Cho & Son Ltd
C. R. Abidjan	Wallem Ship Management Ltd
C. R. Douala	Wallem Ship Management Ltd
C. R. Pointe Noire	Wallem Ship Management Ltd
Caramella	International Maritime Carriers Ltd
Eastern Coral	Unique Shipping Agencies Ltd
Eastern Delta	Unique Shipping Agencies Ltd
Eastern Express	Unique Shipping Agencies Ltd
Eastern Harmony	Ahrenkiel Liner Service (H.K.) Ltd
Feoso Ambassador 2	Feoso Maritime Ltd
Hallvard	Thoresen & Co. Ltd
Hugheverett	Everett Steamship Corp. S/A
Jebsen Tauranga	Sime Darby Shipping (H.K.) Ltd
Malvern	Denholm Ship Management Ltd
Manila Pacific	Fenwick Shipping Services Ltd
Manoloeverett	Everett Steamship Corp. S/A
Maritime Champion	International Maritime Carriers Ltd
Maritime Goliath	International Maritime Carriers Ltd
Maritime Optimum	International Maritime Carriers Ltd
Maritime Triumph	International Maritime Carriers Ltd
Musing	Ocean Tramping Co. Ltd
New Oasis	Wing Tak Shipping Agency Ltd
Ngan Chau	H.K. Island Shipping Agency Ltd
Normannia	Ahrenkiel Liner Service (H.K.) Ltd
Ocean Container	H.K. Island Shipping Agency Ltd
Ocean Elite	Wing Tak Shipping Agency Ltd
Ocean Sincerity	Wing Tak Shipping Agency Ltd
Ocean Strength	Wing Tak Shipping Agency Ltd
Pearl Kim	Hong Kong Borneo Shipping Co. Ltd
Sea Architect	Interocean Shipping Co. Ltd
Seamaster I	Interocean Shipping Co. Ltd
Silver Clipper	Valles Steamship Co. Ltd
Tachibana	Barber Ship Management Ltd
Thai Tubtim	Orient Overseas Management and Finance Ltd
Theben	Barber Ship Management Ltd
Thomaseverett	Everett Steamship Corp. S/A
Willine Taiko	Jardine Shipping Agencies (H.K.) Ltd
Yuen Chau	H.K. Islands Shipping Agency Ltd

INDIA (Information dated 1.1.86)

NAME OF VESSEL	OWNER/MANAGER
Selected Ships:	
Akbar	Mogul Line Ltd
Andamans	Shipping Corporation of India
B.R. Ambedkar	Shipping Corporation of India
Chennai Selvam	South India Shipping Co.
Gaveshani	Government of India
Harsha Vardan	Shipping Corporation of India
Jalajyoti	Scindia Steam Navigation Co.
Jalakanta	Scindia Steam Navigation Co.
Jalamoti	Scindia Steam Navigation Co.
Jalarajan	Scindia Steam Navigation Co.
Jalayamini	Scindia Steam Navigation Co.
Jalazad	Scindia Steam Navigation Co.
Lokmanya Tilak	Shipping Corporation of India
Nancowry	Shipping Corporation of India
Ratna Nandini	Ratnakar Shipping Co.
Sagar Kanya	Shipping Corporation of India
Shompen	Shipping Corporation of India
State of Andhra Pradesh	Shipping Corporation of India
State of Mysore	Shipping Corporation of India
State of Nagaland	Shipping Corporation of India
State of West Bengal	Shipping Corporation of India
Vishnu Sagar	Shipping Corporation of India
Vishva Anurag	Parekh Ocean Carriers
Supplementary Ships:	
Ajanta	Shipping Corporation of India
Al Gilani	Allanasons Shipping Co. Pte. Ltd
Annapurna	Shipping Corporation of India
Anupama	Shipping Corporation of India
Apj Ambika	Surrendra Overseas Ltd
Apj Anjali	Surrendra Overseas Ltd
Apj Anand	Surrendra Overseas Ltd
Apj Priya	Surrendra Overseas Ltd
Arunachal Pradesh	Shipping Corporation of India
Aradhana	Shipping Corporation of India
Archana	Shipping Corporation of India
Bailadila	Shipping Corporation of India
Ballary	Shipping Corporation of India
Barauni	Shipping Corporation of India
Bhagat Singh	Shipping Corporation of India
Bharat Seema	Shipping Corporation of India
Bharatendu	Shipping Corporation of India
Bhaskara	Shipping Corporation of India
Bhavabhuti	Shipping Corporation of India
Chanakya	Shipping Corporation of India
Chandidas	Shipping Corporation of India
Chennai Jayam	South India Shipping Co.
Chennai Muyarchi	South India Shipping Co.
Chennai Ookkam	South India Shipping Co.
Chennai Perumai	South India Shipping Co.
Chennai Sadhanai	South India Shipping Co.
Chennai Veeram	South India Shipping Co.
Chattrapati Shivaji	Shipping Corporation of India
Desh Deep	Shipping Corporation of India
Devaraya	Shipping Corporation of India
Diglipur	Shipping Corporation of India
Homi Bhapha	Shipping Corporation of India
Indian Endurance	India Steamship Co.
Indian Explorer	India Steamship Co.
Indian Faith	India Steamship Co.
Indian Fame	India Steamship Co.
Indian Fraternity	India Steamship Co.
Indian Freedom	India Steamship Co.
Indian Grace	India Steamship Co.
Indian Goodwill	India Steamship Co.
Indian Industry	India Steamship Co.
Indian Progress	India Steamship Co.
Indian Prosperity	India Steamship Co.
Indian Triumph	India Steamship Co.
Indian Valour	India Steamship Co.
Indian Venture	India Steamship Co.

India (*contd*)

NAME OF VESSEL	OWNER/MANAGER
INS Kripan	Indian Coast Guard
Jag Anjali	Great Eastern Shipping Co. Ltd
Jag Dharma	Great Eastern Shipping Co. Ltd
Jag Doot	Great Eastern Shipping Co. Ltd
Jag Jiwan	Great Eastern Shipping Co. Ltd
Jag Jyoti	Great Eastern Shipping Co. Ltd
Jag Manek	Great Eastern Shipping Co. Ltd
Jag Pari	Great Eastern Shipping Co. Ltd
Jap Prakash	Great Eastern Shipping Co. Ltd
Jag Preeti	Great Eastern Shipping Co. Ltd
Jag Rekha	Great Eastern Shipping Co. Ltd
Jag Shakti	Great Eastern Shipping Co. Ltd
Jag Shanti	Great Eastern Shipping Co. Ltd
Jagat Kirti	Dempo Steamships Co.
Jagat Samarat	Dempo Steamships Co.
Jag Swamini	Dempo Steamships Co.
Jagat Vijeta	Dempo Steamships Co.
Jalabala	Scindia Steam Navigation Co.
Jalagodavari	Scindia Steam Navigation Co.
Jalagouri	Scindia Steam Navigation Co.
Jalagovind	Scindia Steam Navigation Co.
Jalajaya	Scindia Steam Navigation Co.
Jalakala	Scindia Steam Navigation Co.
Jalamani	Scindia Steam Navigation Co.
Jalamatsya	Scindia Steam Navigation Co.
Jalamayur	Scindia Steam Navigation Co.
Jalamohan	Scindia Steam Navigation Co.
Jalamokambi	Scindia Steam Navigation Co.
Jalamudra	Scindia Steam Navigation Co.
Jalamurugan	Scindia Steam Navigation Co.
Jalaputra	Scindia Steam Navigation Co.
Jalarashmi	Scindia Steam Navigation Co.
Jalaratna	Scindia Steam Navigation Co.
Jalatapi	Scindia Steam Navigation Co.
Jalavallabh	Scindia Steam Navigation Co.
Jalavijaya	Scindia Steam Navigation Co.
Jalayamuna	Scindia Steam Navigation Co.
Jameela	Shipping Corporation of India
Jana Priya	Mogul Line Ltd
Jawaharlal Nehru	Shipping Corporation of India
Jay Ambika	Jay Shree Shipping Co.
Jayanarayan Vyas	Shipping Corporation of India
Kabirdas	Shipping Corporation of India
Kalidas	Shipping Corporation of India
Kanchenjunga	Shipping Corporation of India
Kanishka	Shipping Corporation of India
Kolandia	South India Shipping Co.
Lal Bahadur Shastri	Shipping Corporation of India
Laxmi	Shipping Corporation of India
Lok Manya	Mogul Line Ltd
Lok Nayak	Mogul Line Ltd
Lok Polak	Mogul Line Ltd
Lok Priti	Mogul Line Ltd
Lok Sahayak	Mogul Line Ltd
Lok Vihar	Mogul Line Ltd
Lok Vikas	Mogul Line Ltd
Lok Vinay	Mogul Line Ltd
Lok Vivek	Mogul Line Ltd
Mahabhakti	South East Asia Shipping Co.
Mahabir	South East Asia Shipping Co.
Maharashmi	Shipping Corporation of India
Maharshi Karve	Shipping Corporation of India
Mahavijay	South East Asia Shipping Co.
Maratha Elegance	Chowgule Steamship Co.
Maratha Melody	Chowgule Steamship Co.
Maratha Progress	Chowgule Steamship Co.
Maratha Prudence	Chowgule Steamship Co.
Meghdoot	Varuna Shipping Co.
Meghrab	Shipping Corporation of India
Mizoram	Shipping Corporation of India
MMP Wealth	M.M.P. Lines Ltd
M.O.T. Dredge	Shipping Corporation of India

India (*contd*)

NAME OF VESSEL	OWNER/MANAGER
Nand Hari	Essar Shipping Ltd
Nand Kala	Essar Construction and Carriers Ltd
Nand Kishor	Essar Shipping Ltd
Netaji Subhas Bose	Shipping Corporation of India
Nitya Amar	Maini Shipping Pte Ltd
Nirvan Vishnu	Nirvan Shipping Co.
Onge	Shipping Corporation of India
Prabhu Gopal	Tolani Shipping Co.
Prabhu Puni	Tolani Shipping Co.
Prabhu Satram	Tolani Shipping Co.
Rafi Ahmed Kidwai	Tolani Shipping Co.
Ramdas Ratna Kirti	Tolani Shipping Co.
Ratna Shobhana	Tolani Shipping Co.
Ratna	Tolani Shipping Co.
Vandana	Ratnakar Shipping Co.
Ravidas	Shipping Corporation of India
Rishi Vishva Mitra	Garware Shipping Co.
Sagar Deep	Shipping Corporation of India
Sagar Samrat	Oil & Natural Gas Commission of India
Sai Nanak	TPS Shipping Co.
Samudra Gupta	Shipping Corporation of India
Samdura Jyoti	Shipping Corporation of India
Sanchi	Shipping Corporation of India
Sarojini Naidu	Shipping Corporation of India
Satya Kamal	Seven Seas Transportation Ltd
Satyamurti	Shipping Corporation of India
Satya Padam	Seven Seas Transportation Ltd
Satya Sohan	Seven Seas Transportation Ltd
Sahajahan	Shipping Corporation of India
State of Gujarath	Shipping Corporation of India
State of Harayana	Shipping Corporation of India
State of Kerala	Shipping Corporation of India
State Madhya Pradesh	Shipping Corporation of India
State of Manipur	Shipping Corporation of India
State of Meghalaya	Shipping Corporation of India
State of Rajasthan	Shipping Corporation of India
Teesta	MacKinnon MacKenzie & Co. Ltd
Tulsidas	Shipping Corporation of India
Unibaksh	Shipping Corporation of India
Vallabhai Patel	Shipping Corporation of India
Varuna Adhar	Varuna Shipping Co.
Veer Varuna	Varuna Shipping Co.
Vishva Abha	Shipping Corporation of India
Vishva Aditya	Shipping Corporation of India
Vishva Amitabh	Shipping Corporation of India
Vishva Apurva	Shipping Corporation of India
Vishva Ajay	Shipping Corporation of India
Vishva Asha	Shipping Corporation of India
Vishva Bandhan	Shipping Corporation of India
Vishva Bhakti	Shipping Corporation of India
Vishva Dharma	Shipping Corporation of India
Vishva Karuna	Shipping Corporation of India
Vishva Kaumdi	Shipping Corporation of India
Vishva Madhuri	Shipping Corporation of India
Vishva Mahima	Shipping Corporation of India
Vishva Mamta	Shipping Corporation of India
Vishva Mohini	Shipping Corporation of India
Vishva Nandini	Shipping Corporation of India
Vishva Nayak	Shipping Corporation of India
Vishva Pallav	Shipping Corporation of India
Vishva Pankaj	Shipping Corporation of India
Vishva Parag	Shipping Corporation of India
Vishva Parijat	Shipping Corporation of India
Vishva Parimal	Shipping Corporation of India
Vishva Prayas	Shipping Corporation of India
Vishva Seva	Shipping Corporation of India
Vishva Shakti	Shipping Corporation of India
Vishva Shobha	Shipping Corporation of India
Vishva Siddhi	Shipping Corporation of India
Vishva Tarang	Shipping Corporation of India
Vishva Tej	Shipping Corporation of India
Vishva Tirth	Shipping Corporation of India

India (*contd*)

NAME OF VESSEL	OWNER/MANAGER
Vishva Umang	Shipping Corporation of India
Vishva Vikram	Shipping Corporation of India
Vishva Yash	Shipping Corporation of India
Vishwesharayya	Shipping Corporation of India
Vivekanand	Shipping Corporation of India
Yerawa	Shipping Corporation of India
Zakir Hussain	Shipping Corporation of India

Auxiliary Ships:
India has 37 Auxiliary Ships.

NEW ZEALAND (Information dated 1.2.86)

NAME OF VESSEL	OWNER/MANAGER
Selected Ships:	
ACT 3	Blue Port ACT (N.Z.) Ltd
ACT 4	Blue Port ACT (N.Z.) Ltd
ACT 5	Blue Port ACT (N.Z.) Ltd
Amokura	Union S.S. Co. (N.Z.) Ltd
Aotea	Container Fleets (N.Z.) Ltd
Auckland Express	Tasman Express Line
Bounty III	Pacific Lines
Coastal Trader	Shipping Corporation of N.Z.
Columbia Star	Blue Port ACT (N.Z.) Ltd
Daniel Solander	Solander Fisheries Ltd
Express	B.P. Tanker Co. Ltd
Fetu Moana	Shipping Corporation of N.Z.
Fijian	Reef Shipping Agencies
Forum New Zealand	Pacific Forum Line
Forum Samoa	Pacific Forum Line
Golden Bay	Tarakohe Shipping Co.
Holmdale	Union S.S. Co. (N.Z.) Ltd
James Cook	N.Z. Government (Fisheries Research)
Jebsen Tauranga	Jebsen N.Z. Ltd
Kolle D.	Naura Pacific Line
Kotuku	Union S.S. Co. (N.Z.) Ltd
Kuaka	Union S.S. Co. (N.Z.) Ltd
N.Z. Caribbean	Shipping Corporation of N.Z.
N.Z. Mariner	Shipping Corporation of N.Z.
N.Z. Pacific	Shipping Corporation of N.Z.
New Zealand Trader	Shipping Corporation of N.Z.
Ngahere	Union S.S. Co. (N.Z.) Ltd
Ngapara	Union S.S. Co. (N.Z.) Ltd
Pacific Ataawhai	Shell B.P. Todd Consortium
Spirit of Competition	Pacifica Shipping Co.
Taiko	Union S.S. Co. (N.Z.) Ltd
Tasman Enterprise	Development Finance Co.
Tasman Venture	Development Finance Co.
Tiare Moana	Shipping Corporation of N.Z.
Tui Cakau III	Pacific Lines
Union Auckland	Union S.S. Co. (N.Z.) Ltd
Union Dunedin	Union S.S. Co. (N.Z.) Ltd
Union Rotoiti	Union S.S. Co. (N.Z.) Ltd
Union Rotorua	Union S.S. Co. (N.Z.) Ltd
Union Sydney	Union S.S. Co. (N.Z.) Ltd
Westport	N.Z Cement Holdings Ltd

Auxiliary Ships: New Zealand also has a fleet of 11 Auxiliary Ships currently reporting.

Printed for HMSO by Linneys Colour Print Dd 739132 C18 7/86 47486

© Crown copyright 1986
First published 1986
HMSO publications are available from:

HMSO Publications Centre
(Mail and telephone orders only)
PO Box 276, London, SW8 5DT
Telephone orders 01-622 3316
General enquiries 01-211 5656
(queuing system in operation for both numbers)

HMSO Bookshops
49 High Holborn, London, WC1V 6HB 01-211 5656 (Counter service only)
258 Broad Street, Birmingham, B1 2HE 021-643 3757
Southey House, 33 Wine Street, Bristol, BS1 2BQ (0272) 24306/24307
9-21 Princess Street, Manchester, M60 8AS 061-834 7201
80 Chichester Street, Belfast, BT1 4JY (0232) 234488
13a Castle Street, Edinburgh, EH2 3AR 031-225 6333

HMSO's Accredited Agents
(see Yellow Pages)

and through good booksellers

Annual subscription
£9·90 including postage.

£2·50 net.

ISBN 0 11 727727 4
ISSN 0025–3251